

# TEST REPORT

**Applicant:** TFIVE PTY LTD  
**Address:** 10/29 Lorne Ave Killara NSW 2071 Australia  
**Equipment Type:** Water Leak Sensor  
**Model Name:** SJCGQ11LM  
**Brand Name:** Aqara  
**Test Standard:** IEC 62368-1: 2018  
AS/NZS 62368.1:2018  
**Test Date:** Jun.10, 2022 – Jun.14, 2022  
**Date of Issue:** Jun. 29, 2022

**ISSUED BY:**

Shenzhen BALUN Technology Co., Ltd.

**Tested by:** Jinxin Chen

**Checked by:** Terry Wen

**Approved by:** Liao Jianming

(Technical Director)

Jinxin Chen

Terry Wen

Liao Jianming

**Revision History**

Version	Issue Date	Revisions
<u>Rev. 01</u>	<u>Jun. 29, 2022</u>	<u>Initial Issue</u>

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## 1 ADMINISTRATIVE DATA (GENERAL INFORMATION)

### 1.1 Identification of the Testing Laboratory

Company Name	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1/F, Baisha Science and Technology Park, Shahe West Road, Nanshan District, ShenZhen, GuangDong Province
Phone Number	+86 755 6685 0100

### 1.2 Identification of the Responsible Testing Location

Test Location	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1/F, Baisha Science and Technology Park, Shahe West Road, Nanshan District, ShenZhen, GuangDong Province
Description	All measurement facilities used to collect the measurement data are located at Block B, 1/F, Baisha Science and Technology Park, Shahe West Road, Nanshan District, ShenZhen, GuangDong Province

## 2 PRODUCT INFORMATION

### 2.1 Applicant Information

Applicant	TFIVE PTY LTD
Address	10/29 Lorne Ave Killara NSW 2071 Australia

### 2.2 Manufacturer Information

Manufacturer	Lumi United Technology Co., Ltd.
Address	8th Floor, JinQi Wisdom Valley, No.1 Tangling Road, Liuxian Ave, Taoyuan Residential District, Nanshan District, Shenzhen.

### 2.3 Factory Information

Factory	/
Address	/

### 2.4 General Description for Equipment under Test (EUT)

Equipment Type	Water Leak Sensor
Model Name Under Test	SJCGQ11LM
Series Model Name	N/A
Description of Model name differentiation	N/A
Hardware Version	V1.0.1
Software Version	V1.0.3
Dimensions(Approx.)	N/A
Weight(Approx.)	17.0g

### 2.5 Ancillary Equipment

Ancillary Equipment	Coin cell battery	
	Model No.	CR2032
	Serial No.	N/A
	Rated Voltage	3.0VDC
	Manufacturer	Panasonic Corporation

## 2.6 Technical Information

The requirement for the following technical information of the EUT was tested in this report:

Ratings	Input: 3.0Vdc(supplied by Coin cell battery )		
Product group	<input checked="" type="checkbox"/> end product <input type="checkbox"/> built-in component		
Classification of use by	<input checked="" type="checkbox"/> Ordinary person <input type="checkbox"/> Instructed person <input type="checkbox"/> Skilled person <input checked="" type="checkbox"/> Children likely to be present		
Supply Connection	<input type="checkbox"/> AC Mains <input type="checkbox"/> DC Mains <input type="checkbox"/> External Circuit - not Mains connected - <input checked="" type="checkbox"/> ES1 <input type="checkbox"/> ES2 <input type="checkbox"/> ES3		
Supply % Tolerance	<input type="checkbox"/> +10%/-10% <input type="checkbox"/> +20%/-15% <input type="checkbox"/> + ____ %/ - ____ % <input checked="" type="checkbox"/> None		
Supply Connection – Type	<input type="checkbox"/> pluggable equipment type A - <input type="checkbox"/> non-detachable supply cord <input type="checkbox"/> appliance coupler <input type="checkbox"/> direct plug-in <input type="checkbox"/> mating connector <input type="checkbox"/> pluggable equipment type B - <input type="checkbox"/> non-detachable supply cord <input type="checkbox"/> appliance coupler <input type="checkbox"/> permanent connection <input type="checkbox"/> mating connector <input checked="" type="checkbox"/> other: Not directly connect to mains		
Considered current rating of protective device as part of building or equipment installation	<input type="checkbox"/> _____ A; Installation location: <input type="checkbox"/> building; <input type="checkbox"/> equipment <input checked="" type="checkbox"/> N/A		
Equipment mobility	<input checked="" type="checkbox"/> movable <input type="checkbox"/> hand-held <input type="checkbox"/> transportable <input type="checkbox"/> direct plug-in <input type="checkbox"/> stationary <input type="checkbox"/> for building-in <input type="checkbox"/> wall/ceiling-mounted <input type="checkbox"/> SRME/rack-mounted <input type="checkbox"/> other:		
Over voltage category (OVC)	<input type="checkbox"/> OVC I <input type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV <input checked="" type="checkbox"/> other: Not directly connect to mains		
Class of equipment	<input type="checkbox"/> Class I <input type="checkbox"/> Class II <input checked="" type="checkbox"/> Class III <input type="checkbox"/> Not classified <input type="checkbox"/> other		
Access location	<input checked="" type="checkbox"/> N/A <input type="checkbox"/> restricted access area <input type="checkbox"/> outdoor location <input type="checkbox"/>		

Pollution degree (PD)	<input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 <input type="checkbox"/> PD 3
Manufacturer's specified maximum operating ambient	55°C <input type="checkbox"/> Outdoor: minimum °C
IP protection class	<input checked="" type="checkbox"/> IPX0 <input type="checkbox"/> IPX4
Power Systems	<input type="checkbox"/> TN <input type="checkbox"/> TT <input type="checkbox"/> IT - _____ V L-L; <input type="checkbox"/> dc mains <input checked="" type="checkbox"/> not AC mains
Altitude during operation (m)	<input checked="" type="checkbox"/> 2000m or less <input type="checkbox"/> 5000 m
Altitude of test laboratory (m)	<input checked="" type="checkbox"/> 2000m or less <input type="checkbox"/> _____ m
Mass of equipment (kg)	<input checked="" type="checkbox"/> 17.0g
Note: The above EUT information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.	

### 3 SUMMARY OF TEST

#### 3.1 Test Standards

No.	Identity	Document Title
1	IEC 62368-1:2018	Audio/video, information and communication technology equipment –Part 1: Safety requirements
2	AS/NZS 62368.1:2018	Audio/video, information and communication technology equipment –Part 1: Safety requirements

#### 3.2 Possible test box verdict

Possible test box verdicts:

- test box does not apply to the test object. : N/A
- test object does meet the requirement.....: P(Pass)
- test object does not meet the requirement..: F(Fail)

### 3.3 Test item

<p>Tests performed (name of test and test clause):</p> <p>All applicable tests as described in Test Case and Measurement Sections were performed.</p> <table border="1"> <tr><td>4</td><td>General requirements</td></tr> <tr><td>4.8.4, 4.8.5</td><td>Lithium coin/button cell batteries mechanical tests</td></tr> <tr><td>5.2</td><td>Electrical energy source classifications</td></tr> <tr><td>5.4.1.4, 6.3.2, 9.0, B.2.6</td><td>Maximum operating temperatures for materials, components and systems</td></tr> <tr><td>6.2.2</td><td>Electrical power sources (PS) measurements for classification</td></tr> <tr><td>6.3, 6.4</td><td>Simulated abnormal operating and single fault conditions</td></tr> <tr><td>9.4.1</td><td>Equipment safeguards for thermal burn</td></tr> <tr><td>B.2.5</td><td>Input tests</td></tr> <tr><td>B.4</td><td>Simulated single fault conditions</td></tr> <tr><td>F.3.9</td><td>Durability, legibility and permanence of markings</td></tr> <tr><td>T.5</td><td>Steady force test, 250 N</td></tr> <tr><td>T.6</td><td>Impact test</td></tr> <tr><td>T.8</td><td>Stress relief test</td></tr> </table> <p>Manufacturer specified the operating temperature range (without charging): 55°C.</p>	4	General requirements	4.8.4, 4.8.5	Lithium coin/button cell batteries mechanical tests	5.2	Electrical energy source classifications	5.4.1.4, 6.3.2, 9.0, B.2.6	Maximum operating temperatures for materials, components and systems	6.2.2	Electrical power sources (PS) measurements for classification	6.3, 6.4	Simulated abnormal operating and single fault conditions	9.4.1	Equipment safeguards for thermal burn	B.2.5	Input tests	B.4	Simulated single fault conditions	F.3.9	Durability, legibility and permanence of markings	T.5	Steady force test, 250 N	T.6	Impact test	T.8	Stress relief test	<p>Summary of compliance with National Differences:</p> <p>List of countries addressed:</p> <ol style="list-style-type: none"> <li>1. Australia / New Zealand</li> </ol>
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4.8.4, 4.8.5	Lithium coin/button cell batteries mechanical tests																										
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T.5	Steady force test, 250 N																										
T.6	Impact test																										
T.8	Stress relief test																										

### 3.4 General information

#### GENERAL REMARKS:

The test results presented in this report relate only to the object tested.

This report shall not be reproduced, except in full, without the written approval of the issuing testing laboratory.

"(see Enclosure #)" refers to additional information appended to the report.

"(see appended table)" refers to a table appended to the report.

#### GENERAL PRODUCT INFORMATION:

The equipment is Water Leak Sensor, the measurement model name is SJCGQ11LM.

1. The equipment is a class III Water Leak Sensor, used as Audio/video, information and communication technology equipment which indoor use only.

2. Instructions and equipment marking related to safety is applied in the language that is acceptable in the country in which the equipment is to be sold.

3. Circuit characteristics: Only secondary (SELV) circuit.

4. The product it to be powered by Coin cell battery. which were classified as ES1.

5. The specified Max. ambient temperature is +55°C

#### OVERVIEW OF ENERGY SOURCES AND SAFEGUARDS

Clause	Possible Hazard			
5	Electrically-caused injury			
Class and Energy Source (e.g. ES3: Primary circuit)	Body Part (e.g. Ordinary)	Safeguards		
ES1:Input circuit (3.0Vd.c. by Coin cell battery.)	Ordinary	B	S	R
6	Electrically-caused fire			
Class and Energy Source (e.g. PS2: 100 Watt circuit)	Material part (e.g. Printed board)	Safeguards		
PS1:Input circuit	PCB	B	1 <sup>st</sup> S	2 <sup>nd</sup> S
PS1:Input circuit	Enclosure	Comply with 6.3	N/A	N/A
7	Injury caused by hazardous substances			
Class and Energy Source (e.g. Ozone)	Body Part (e.g., Skilled)	Safeguards		
Coin cell battery	Ordinary	B	S	R
		N/A	Complied	N/A

			with annex M	
8	Mechanically-caused injury			
Class and Energy Source (e.g. MS3: Plastic fan blades)	Body Part (e.g. Ordinary)	Safeguards		
		B	S	R
MS1: Corner and edge are smooth	Ordinary	N/A	N/A	N/A
MS1: Mass of EUT	Ordinary	N/A	N/A	N/A
9	Thermal burn			
Class and Energy Source (e.g. TS1: Keyboard caps)	Body Part (e.g., Ordinary)	Safeguards		
		B	S	R
TS1: Accessible parts	Ordinary	N/A	N/A	N/A
10	Radiation			
Class and Energy Source (e.g. RS1: PMP sound output)	Body Part (e.g., Ordinary)	Safeguards		
		B	S	R
RS1: LED use as indicating lights of EUT	Ordinary	N/A	N/A	N/A
Supplementary Information:				
“B” – Basic Safeguard; “S” – Supplementary Safeguard; “R” – Reinforced Safeguard				

## 4 GENERAL TEST CONFIGURATIONS

### 4.1 Test Environments

Temperature (°C)	15°C to 35°C
Relative Humidity (%)	35% to 75%
Atmospheric Pressure (kPa)	100kPa to 102kPa

### 4.2 Test Equipment List

No.	Equipment name	Manufacture	Serial No.	Calibration Due Data	Usage
1	Digital Caliper	AIRUIZE	BZ-SFT-L228	2022/10/11	√
2	Heating Recorder	Agilent	BZ-SFT-L131	2023/01/04	√
3	High temperature test chamber	SHANGHAI JINGMI	BZ-SFT-L222	2023/01/04	√
4	Pull and push Tester	HANDPI	BZ-SFT-L045	2022/10/11	√
5	Digital Multimeter	Victor	BZ-SFT-L199	2022/10/11	√
6	Electronic Scale	YINGHENG	BZ-SFT-L107	2022/10/11	√
7	Stop Watch	TF	BZ-SFT-L068	2023/05/24	√
8	Temperature and humidity meter	CEM	BZ-SFT-L197	2022/10/12	√
9	Tape Measure	DELI	BZ-SFT-L145	2022/10/12	√
10	Impact ball	/	BZ-KKX-L012	2022/08/08	√
11	Spring hammer	2J	BZ-SFT-L189	2023/01/06	√
12	Torsion gauge	TOHNICHI	BZ-SFT-L018	2022/10/12	√
13	Test hook	AUTO-G1	BZ-SFT-L041	2022/10/12	√

Clause	Requirement-Test	Result-Remark	Verdict
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## 5 TEST RESULTS

4	GENERAL REQUIREMENTS		P
4.1.1	Acceptance of materials, components and subassemblies	See appended table 4.1.2	P
4.1.2	Use of components	Components which are certified to EN and/or national standards are used correctly within their ratings. Components not covered by EN standards are tested under the conditions present in the equipment. See also Annex G	P
4.1.3	Equipment design and construction	Evaluation of safeguards regarding limiting the outputs to fulfill ES1 and protection in regard to risk of spread of fire, mechanical and thermal burn injury considered.	P
4.1.4	Specified ambient temperature for outdoor use (°C) .....:		N/A
4.1.5	Constructions and components not specifically covered		N/A
4.1.8	Liquids and liquid filled components (LFC)		N/A
4.1.15	Markings and instructions	(See Annex F)	P
4.4.3	Safeguard robustness		P
4.4.3.1	General		P
4.4.3.2	Steady force tests	(See Clause T.5)	P
4.4.3.3	Drop tests		N/A
4.4.3.4	Impact tests	(See Clause T.6)	P
4.4.3.5	Internal accessible safeguard tests		P
4.4.3.6	Glass impact tests		N/A
4.4.3.7	Glass fixation tests		N/A
	Glass impact test (1J)		N/A
	Push/pull test (10 N)		N/A

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Clause	Requirement-Test	Result-Remark	Verdict
4.4.3.8	Thermoplastic material tests	(See Clause T.8)	P
4.4.3.9	Air comprising a safeguard		N/A
4.4.3.10	Accessibility, glass, safeguard effectiveness	After tests, no safeguard damaged	P
4.4.4	Displacement of a safeguard by an insulating liquid		N/A
4.4.5	Safety interlocks	(See Annex K)	N/A
<b>4.5</b>	<b>Explosion</b>		P
4.5.1	General	No explosion occurs during normal/abnormal operation and single fault conditions	P
4.5.2	No explosion during normal/abnormal operating condition	(See Clause B.2, B.3)	P
	No harm by explosion during single fault conditions	(See Clause B.4)	P
<b>4.6</b>	<b>Fixing of conductors</b>	Class III equipment	N/A
	Fix conductors not to defeat a safeguard		N/A
	Compliance is checked by test.....:		N/A
<b>4.7</b>	<b>Equipment for direct insertion into mains socket-outlets</b>		N/A
4.7.2	Mains plug part complies with relevant standard... :	The EUT is not for direct insertion into mains socket outlets, class III equipment	N/A
4.7.3	Torque (Nm)..... :		N/A
<b>4.8</b>	<b>Equipment containing coin/button cell batteries</b>		P
4.8.1	General	Supply power by Coin button battery	P
4.8.2	Instructional safeguard..... :	See instructions for details	NP
4.8.3	Battery compartment door/cover construction		P
	Open torque test	Need a tool to open	P
4.8.4.2	Stress relief test	Whole enclosure placed in a 70°C High temperature Chamber for 7h	P
4.8.4.3	Battery replacement test	Battery Installation or Removal Cycle :10 times	P
4.8.4.4	Drop test	Drop high:1000mm Drop cycle:10 times	P
4.8.4.5	Impact test	Impact energy :2.0J	P

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Clause	Requirement-Test	Result-Remark	Verdict
		Impact cycle:3 times	
4.8.4.6	Crush test	Use a flat surface of approximately 100mm*250mm instrument to expose the device in a steady state squeeze force of $330N \pm 5N$ was applied to the outer top and back surfaces for 10 seconds	P
4.8.5	Compliance		P
	30N force test with test probe	With the most disadvantageous position and the most A force of $30N \pm 1N$ is applied to the battery compartment door/cover in the unfavorable direction for 10 seconds	P
	20N force test with test hook		N/A
4.9	<b>Likelihood of fire or shock due to entry of conductive object</b>		P
4.10	<b>Component requirements</b>		N/A
4.10.1	Disconnect Device		N/A
4.10.2	Switches and relays		N/A

<b>5</b>	<b>ELECTRICALLY-CAUSED INJURY</b>		P
<b>5.2</b>	<b>Classification and limits of electrical energy sources</b>		P
5.2.2	ES1, ES2 and ES3 limits	ES1	P
5.2.2.2	Steady-state voltage and current limits..... :	(See appended table 5.2)	P
5.2.2.3	Capacitance limits..... :	Class III equipment	N/A
5.2.2.4	Single pulse limits.....:	No such single pulses generated in the EUT or applied to it.	N/A
5.2.2.5	Limits for repetitive pulses.....:	No such repetitive pulses within the EUT.	N/A
5.2.2.6	Ringing signals	No such ringing signals within the EUT	N/A
5.2.2.7	Audio signals	No such Audio signals within the EUT	N/A
<b>5.3</b>	<b>Protection against electrical energy sources</b>		P

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Clause	Requirement-Test	Result-Remark	Verdict
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons	See only 4.3 and 5.3 to 5.5 which applies to protection between the accessible parts and hazardous parts of other circuits.	P
5.3.1 a)	Accessible ES1/ES2 derived from ES2/ES3 circuits		N/A
5.3.1 b)	Skilled persons not unintentional contact ES3 bare conductors		N/A
5.3.2.1	Accessibility to electrical energy sources and safeguards	Only ES1 circuit can be accessed for this product.	P
	Accessibility to outdoor equipment bare parts		N/A
5.3.2.2	Contact requirements		N/A
	Test with test probe from Annex V		—
5.3.2.2 a)	Air gap – electric strength test potential (V)..... : .....	(See appended table 5.4.9)	N/A
5.3.2.2 b)	Air gap – distance (mm) ..... : .....		N/A
5.3.2.3	Compliance		N/A
5.3.2.4	Terminals for connecting stripped wire		N/A
<b>5.4</b>	<b>Insulation materials and requirements</b>		P
5.4.1.2	Properties of insulating material	All circuits or parts are considered as ES1. Insulation are not required.	N/A
5.4.1.3	Material is non-hygroscopic		N/A
5.4.1.4	Maximum operating temperature for insulating materials..... : .....	(See appended table)	P
5.4.1.5	Pollution degrees..... : .....	2	--
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound	Pollution degree 2 is applied. No insulating compound applied (however see 5.5.4).	N/A
5.4.1.5.3	Thermal cycling test	See above	N/A
5.4.1.6	Insulation in transformers with varying dimensions	No such transformer within the EUT	N/A
5.4.1.7	Insulation in circuits generating starting pulses	No such starting pulses within the EUT	N/A
5.4.1.8	Determination of working voltage..... : .....		N/A
5.4.1.9	Insulating surfaces		N/A

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Clause	Requirement-Test	Result-Remark	Verdict
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted		N/A
5.4.1.10.2	Vicat test.....:		N/A
5.4.1.10.3	Ball pressure test.....:		N/A
5.4.2	Clearances		N/A
5.4.2.1	General requirements		N/A
	Clearances in circuits connected to AC Mains, Alternative method		N/A
5.4.2.2	Procedure 1 for determining clearance		N/A
	Temporary overvoltage .....		—
5.4.2.3	Procedure 2 for determining clearance		N/A
5.4.2.3.2.2	a.c. mains transient voltage..... :		—
5.4.2.3.2.3	d.c. mains transient voltage .....		—
5.4.2.3.2.4	External circuit transient voltage.....:		—
5.4.2.3.2.5	Transient voltage determined by measurement.....:		—
5.4.2.4	Determining the adequacy of a clearance using an electric strength test .....	(See appended table 5.4.2)	N/A
5.4.2.5	Multiplication factors for clearances and test voltages .....		N/A
5.4.2.6	Clearance measurement.....:	(See appended table 5.4.2)	N/A
5.4.3	Creepage distances		N/A
5.4.3.1	General		N/A
5.4.3.3	Material group.....:		—
5.4.3.4	Creepage distances measurement.....:	(See appended table 5.4.3)	N/A
5.4.4	Solid insulation		N/A
5.4.4.1	General requirements		N/A
5.4.4.2	Minimum distance through insulation .....	(See appended table 5.4.4.2)	N/A
5.4.4.3	Insulating compound forming solid insulation		N/A
5.4.4.4	Solid insulation in semiconductor devices		N/A
5.4.4.5	Insulating compound forming cemented joints		N/A
5.4.4.6	Thin sheet material		N/A

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Clause	Requirement-Test	Result-Remark	Verdict
5.4.4.6.1	General requirements		N/A
5.4.4.6.2	Separable thin sheet material		N/A
	Number of layers (pcs) .....		N/A
5.4.4.6.3	Non-separable thin sheet material		N/A
	Number of layers (pcs) .....		N/A
5.4.4.6.4	Standard test procedure for non-separable thin sheet material.....:	(See appended table 5.4.9)	N/A
5.4.4.6.5	Mandrel test		N/A
5.4.4.7	Solid insulation in wound components		N/A
5.4.4.9	Solid insulation at frequencies >30 kHz, $E_P$ , $K_R$ , $d$ , $V_{PW}$ (V).....:	(See appended Table 5.4.4.9)	N/A
	Alternative by electric strength test, tested voltage (V), $K_R$ .....:	(See appended Tables 5.4.4.9 and 5.4.9)	N/A
5.4.5	Antenna terminal insulation		N/A
5.4.5.1	General		N/A
5.4.5.2	Voltage surge test		N/A
5.4.5.3	Insulation resistance ( $M\Omega$ )..... :		N/A
	Electric strength test.....:	(See appended table 5.4.9)	N/A
5.4.6	Insulation of internal wire as part of supplementary safeguard		N/A
5.4.7	Tests for semiconductor components and for cemented joints		N/A
5.4.8	Humidity conditioning		N/A
	Relative humidity (%), temperature (°C), duration (h).....:		—
5.4.9	Electric strength test		N/A
5.4.9.1	Test procedure for type test of solid insulation..... :	(See appended table 5.4.9)	N/A
5.4.9.2	Test procedure for routine test		N/A
5.4.10	Safeguards against transient voltages from external circuits		N/A
5.4.10.1	Parts and circuits separated from external circuits		N/A

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Clause	Requirement-Test	Result-Remark	Verdict
5.4.10.2	Test methods		N/A
5.4.10.2.1	General		N/A
5.4.10.2.2	Impulse test..... : (See appended table 5.4.9)		N/A
5.4.10.2.3	Steady-state test..... : (See appended table 5.4.9)		N/A
5.4.10.3	Verification for insulation breakdown for impulse test..... :		N/A
5.4.11	Separation between external circuits and earth		N/A
5.4.11.1	Exceptions to separation between external circuits and earth		N/A
5.4.11.2	Requirements		N/A
	SPDs bridge separation between external circuit and earth		N/A
	Rated operating voltage $U_{op}$ (V).....:		—
	Nominal voltage $U_{peak}$ (V).....:		—
	Max increase due to variation $\Delta U_{sp}$ ..... :		—
	Max increase due to ageing $\Delta U_{sa}$ ..... :		—
5.4.11.3	Test method and compliance..... : (See appended table 5.4.9)		N/A
5.4.12	Insulating liquid		N/A
5.4.12.1	General requirements		N/A
5.4.12.2	Electric strength of an insulating liquid..... : (See appended table 5.4.9)		N/A
5.4.12.3	Compatibility of an insulating liquid..... : (See appended table 5.4.9)		N/A
5.4.12.4	Container for insulating liquid..... :		N/A
<b>5.5</b>	<b>Components as safeguards</b>		
5.5.1	General		N/A
5.5.2	Capacitors and RC units		N/A
5.5.2.1	General requirement		N/A
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector..... : (See appended table 5.5.2.2)		N/A
5.5.3	Transformers		N/A
5.5.4	Optocouplers	(See sub-clause 5.4 or Clause G.12)	N/A

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Clause	Requirement-Test	Result-Remark	Verdict
5.5.5	Relays	(See sub-clause 5.4)	N/A
5.5.6	Resistors	(See Clause G.10)	N/A
5.5.7	SPDs	(See Clause G.8)	N/A
5.5.8	Insulation between the mains and an external circuit consisting of a coaxial cable.....:		N/A
5.5.9	Safeguards for socket-outlets in outdoor equipment		N/A
	RCD rated residual operating current (mA).....:		—
<b>5.6</b>	<b>Protective conductor</b>		N/A
5.6.2	Requirement for protective conductors		N/A
<b>5.6</b>	<b>Protective conductor</b>		N/A
5.6.2	Requirement for protective conductors		N/A
5.6.2.1	General requirements		N/A
5.6.2.2	Colour of insulation		N/A
5.6.3	Requirement for protective earthing conductors		N/A
	Protective earthing conductor size (mm <sup>2</sup> ) .....		—
	Protective earthing conductor serving as a reinforced safeguard		N/A
	Protective earthing conductor serving as a double safeguard		N/A
5.6.4	Requirements for protective bonding conductors		N/A
5.6.4.1	Protective bonding conductors		N/A
	Protective bonding conductor size (mm <sup>2</sup> ).....:		—
5.6.4.2	Protective current rating (A).....:		N/A
5.6.5	Terminals for protective conductors		N/A
5.6.5.1	Terminal size for connecting protective earthing conductors (mm).....:		N/A
	Terminal size for connecting protective bonding conductors (mm).....:		N/A
5.6.5.2	Corrosion		N/A
5.6.6	Resistance of the protective bonding system		N/A
5.6.6.1	Requirements		N/A

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Clause	Requirement-Test	Result-Remark	Verdict
5.6.6.2	Test Method.....: Test Method.....:	(See appended table 5.6.6)	N/A
5.6.6.3	Resistance ( $\Omega$ ) or voltage drop.....: Resistance ( $\Omega$ ) or voltage drop.....:	(See appended table 5.6.6)	N/A
5.6.7	Reliable connection of a protective earthing conductor		N/A
5.6.8	Functional earthing		N/A
	Conductor size ( $\text{mm}^2$ ).....: Conductor size ( $\text{mm}^2$ ).....:		N/A
	Class II with functional earthing marking .....: Class II with functional earthing marking .....:		N/A
	Appliance inlet cl & cr (mm).....: Appliance inlet cl & cr (mm).....:		N/A
<b>5.7</b>	<b>Prospective touch voltage, touch current and protective conductor current</b>		N/A
5.7.2	Measuring devices and networks		N/A
5.7.2.1	Measurement of touch current		N/A
5.7.2.2	Measurement of voltage		N/A
5.7.3	Equipment set-up, supply connections and earth connections		N/A
5.7.4	Unearthed accessible parts..... : Unearthed accessible parts..... :	(See appended table 5.7.4)	N/A
5.7.5	Earthed accessible conductive parts.....: Earthed accessible conductive parts.....:	(See appended table 5.7.5)	N/A
5.7.6	Requirements when touch current exceeds ES2 limits		N/A
	Protective conductor current (mA).....: Protective conductor current (mA).....:		N/A
	Instructional Safeguard.....: Instructional Safeguard.....:		N/A
5.7.7	Prospective touch voltage and touch current associated with external circuits		N/A
5.7.7.1	Touch current from coaxial cables		N/A
5.7.7.2	Prospective touch voltage and touch current associated with paired conductor cables		N/A
5.7.8	Summation of touch currents from external circuits		N/A
	a) Equipment connected to earthed external circuits, current (mA).....: a) Equipment connected to earthed external circuits, current (mA).....:		N/A
	b) Equipment connected to unearthing external circuits, current (mA).....: b) Equipment connected to unearthing external circuits, current (mA).....:		N/A
<b>5.8</b>	<b>Backfeed safeguard in battery backed up supplies</b>		N/A

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Clause	Requirement-Test	Result-Remark	Verdict
	Mains terminal ES..... : .....	(See appended table 5.8)	N/A
	Air gap (mm)..... : .....		N/A

<b>6</b>	<b>ELECTRICALLY- CAUSED FIRE</b>		P
<b>6.2</b>	<b>Classification of PS and PIS</b>		P
6.2.2	Power source circuit classifications..... : .....	PS (power source) classification determined by measuring the maximum power in Figures 34 and 35 for load and power source circuits.	P
6.2.3	Classification of potential ignition sources	See the following details.	P
6.2.3.1	Arcing PIS ..... : .....		N/A
6.2.3.2	Resistive PIS ..... : .....		N/A
<b>6.3</b>	<b>Safeguards against fire under normal operating and abnormal operating conditions</b>		P
6.3.1	No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials..... : .....	(See appended table 5.4.1.4, 6.3.2, 9.0, B.2.6)	P
	Combustible materials outside fire enclosure..... : .....		N/A
<b>6.4</b>	<b>Safeguards against fire under single fault conditions</b>		P
6.4.1	Safeguard method	PS1 only, no safeguards are needed against fire.	P
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits	PS1 only, no safeguards are needed against fire.	N/A
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits		N/A
6.4.3.1	Supplementary safeguards		N/A
6.4.3.2	Single Fault Conditions..... : .....		N/A
	Special conditions for temperature limited by fuse		N/A
6.4.4	Control of fire spread in PS1 circuits	PS1 only, no safeguards are needed against fire.	N/A
6.4.5	Control of fire spread in PS2 circuits		N/A
6.4.5.2	Supplementary safeguards		N/A

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Clause	Requirement-Test	Result-Remark	Verdict
6.4.6	Control of fire spread in PS3 circuits		N/A
6.4.7	Separation of combustible materials from a PIS		N/A
6.4.7.2	Separation by distance		N/A
6.4.7.3	Separation by a fire barrier	No specific barrier provided.	N/A
6.4.8	Fire enclosures and fire barriers	See below.	N/A
6.4.8.2	Fire enclosure and fire barrier material properties		N/A
6.4.8.2.1	Requirements for a fire barrier		N/A
6.4.8.2.2	Requirements for a fire enclosure	No fire enclosure required	N/A
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier	No fire enclosure required	N/A
6.4.8.3.1	Fire enclosure and fire barrier openings	No openings	N/A
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Top openings and properties		N/A
	Openings dimensions (mm).....:		N/A
6.4.8.3.4	Bottom openings and properties		N/A
	Openings dimensions (mm).....:		N/A
	Flammability tests for the bottom of a fire enclosure	(See Clause S.3)	N/A
	Instructional Safeguard.....:		N/A
6.4.8.3.5	Side openings and properties		N/A
	Openings dimensions (mm).....:		N/A
6.4.8.3.6	Integrity of a fire enclosure, condition met: a), b) or c).....:		N/A
6.4.8.4	Separation of a PIS from a fire enclosure and a fire barrier distance (mm) or flammability rating.....:		N/A
6.4.9	Flammability of insulating liquid.....:	No such part.	N/A
<b>6.5</b>	<b>Internal and external wiring</b>		N/A
6.5.1	General requirements	No internal wire.	N/A
6.5.2	Requirements for interconnection to building wiring .....		N/A
6.5.3	Internal wiring size (mm <sup>2</sup> ) for socket-outlets..... :		N/A
<b>6.6</b>	<b>Safeguards against fire due to the connection to additional equipment</b>		N/A

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Clause	Requirement-Test	Result-Remark	Verdict
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<b>7</b>	<b>INJURY CAUSED BY HAZARDOUS SUBSTANCES</b>		N/A
<b>7.2</b>	<b>Reduction of exposure to hazardous substances</b>		N/A
<b>7.3</b>	<b>Ozone exposure</b>		N/A
<b>7.4</b>	<b>Use of personal safeguards or personal protective equipment (PPE)</b>		N/A
	Personal safeguards and instructions.....:		—
<b>7.5</b>	<b>Use of instructional safeguards and instructions</b>		N/A
	Instructional safeguard (ISO 7010).....:		—
<b>7.6</b>	<b>Batteries and their protection circuits</b>		N/A

<b>8</b>	<b>MECHANICALLY-CAUSED INJURY</b>		P
<b>8.2</b>	<b>Mechanical energy source classifications</b>		P
<b>8.3</b>	<b>Safeguards against mechanical energy sources</b>		P
<b>8.4</b>	<b>Safeguards against parts with sharp edges and corners</b>		P
8.4.1	Safeguards	No sharp edges and corners:MS1 Weight< 7.0kg:MS1	P
	Instructional Safeguard.....:		N/A
8.4.2	Sharp edges or corners	Edges and corners of the enclosure are rounded, and is considered as MS1.	P
<b>8.5</b>	<b>Safeguards against moving parts</b>		N/A
8.5.1	Fingers, jewellery, clothing, hair, etc., contact with MS2 or MS3 parts		N/A
	MS2 or MS3 part required to be accessible for the function of the equipment		N/A
	Moving MS3 parts only accessible to skilled person		N/A
8.5.2	Instructional safeguard..... :		N/A
8.5.4	Special categories of equipment containing moving parts		N/A
8.5.4.1	General		N/A
8.5.4.2	Equipment containing work cells with MS3 parts		N/A

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Clause	Requirement-Test	Result-Remark	Verdict
8.5.4.2.1	Protection of persons in the work cell		N/A
8.5.4.2.2	Access protection override		N/A
8.5.4.2.2.1	Override system		N/A
8.5.4.2.2.2	Visual indicator		N/A
8.5.4.2.3	Emergency stop system		N/A
	Maximum stopping distance from the point of activation (m)..... :		N/A
	Space between end point and nearest fixed mechanical part (mm)..... :		N/A
8.5.4.2.4	Endurance requirements		N/A
	Mechanical system subjected to 100 000 cycles of operation		N/A
	- Mechanical function check and visual inspection		N/A
	- Cable assembly..... :		N/A
8.5.4.3	Equipment having electromechanical device for destruction of media		N/A
8.5.4.3.1	Equipment safeguards		N/A
8.5.4.3.2	Instructional safeguards against moving parts..... :		N/A
8.5.4.3.3	Disconnection from the supply		N/A
8.5.4.3.4	Cut type and test force (N)..... :		N/A
8.5.4.3.5	Compliance		N/A
8.5.5	High pressure lamps		N/A
	Explosion test..... :		N/A
8.5.5.3	Glass particles dimensions (mm)..... :		N/A
<b>8.6</b>	<b>Stability of equipment</b>		N/A
8.6.1	General	Classification MS1 according to table 35, line 5 and no stability requirements.	N/A
	Instructional safeguard..... :		N/A
8.6.2	Static stability		N/A
8.6.2.2	Static stability test..... :		N/A

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Clause	Requirement-Test	Result-Remark	Verdict
8.6.2.3	Downward force test		N/A
8.6.3	Relocation stability		N/A
	Wheels diameter (mm)..... : .....		—
	Tilt test		N/A
8.6.4	Glass slide test		N/A
8.6.5	Horizontal force test..... : .....		N/A
<b>8.7</b>	<b>Equipment mounted to wall, ceiling or other structure</b>		N/A
8.7.1	Mount means type..... : .....		N/A
8.7.2	Test methods		N/A
	Test 1, additional downwards force (N)..... : .....		N/A
	Test 2, number of attachment points and test force (N)..... : .....		N/A
	Test 3 Nominal diameter (mm) and applied torque (Nm)..... : .....		N/A
<b>8.8</b>	<b>Handles strength</b>		N/A
8.8.1	General		N/A
8.8.2	Handle strength test		N/A
	Number of handles..... : .....		—
	Force applied (N)..... : .....		—
<b>8.9</b>	<b>Wheels or casters attachment requirements</b>		N/A
8.9.2	Pull test		N/A
<b>8.10</b>	<b>Carts, stands and similar carriers</b>		N/A
8.10.1	General		N/A
8.10.2	Marking and instructions..... : .....		N/A
8.10.3	Cart, stand or carrier loading test		N/A
	Loading force applied (N)..... : .....		N/A
8.10.4	Cart, stand or carrier impact test		N/A
8.10.5	Mechanical stability		N/A
	Force applied (N)..... : .....		—
8.10.6	Thermoplastic temperature stability		N/A

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Clause	Requirement-Test	Result-Remark	Verdict
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<b>8.11</b>	<b>Mounting means for slide-rail mounted equipment (SRME)</b>		N/A
8.11.1	General		N/A
8.11.2	Requirements for slide rails		N/A
	Instructional Safeguard.....:		N/A
8.11.3	Mechanical strength test		N/A
8.11.3.1	Downward force test, force (N) applied..... :		N/A
8.11.3.2	Lateral push force test		N/A
8.11.3.3	Integrity of slide rail end stops		N/A
8.11.4	Compliance		N/A
<b>8.12</b>	<b>Telescoping or rod antennas</b>		N/A
	Button/ball diameter (mm).....:		—

<b>9</b>	<b>THERMAL BURN INJURY</b>		P
<b>9.2</b>	<b>Thermal energy source classifications</b>		P
<b>9.3</b>	<b>Touch temperature limits</b>		P
9.3.1	Touch temperatures of accessible parts..... :	(See appended table)	P
9.3.2	Test method and compliance		P
<b>9.4</b>	<b>Safeguards against thermal energy sources</b>		P
<b>9.5</b>	<b>Requirements for safeguards</b>		P
9.5.1	Equipment safeguard	Enclosure provided to limit the transfer of thermal energy of internal parts under normal operating conditions and abnormal operating conditions.	P
9.5.2	Instructional safeguard..... :		N/A
<b>9.6</b>	<b>Requirements for wireless power transmitters</b>		N/A
9.6.1	General		N/A
9.6.2	Specification of the foreign objects		N/A
9.6.3	Test method and compliance.....:		N/A

<b>10</b>	<b>RADIATION</b>	P
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Clause	Requirement-Test	Result-Remark	Verdict
<b>10.2</b>	<b>Radiation energy source classification</b>		P
10.2.1	General classification	RS1	P
	Lasers.....:		—
	Lamps and lamp systems.....:		—
	Image projectors.....:		—
	X-Ray.....:		—
	Personal music player.....:		—
<b>10.3</b>	<b>Safeguards against laser radiation</b>		N/A
	The standard(s) equipment containing laser(s) comply.....:		N/A
<b>10.4</b>	<b>Safeguards against optical radiation from lamps and lamp systems (including LED types)</b>		P
10.4.1	General requirements	For LED indicator, Indicating LED considered as RS1, no safeguards required.	P
	Instructional safeguard provided for accessible radiation level needs to exceed		N/A
	Risk group marking and location.....:		N/A
	Information for safe operation and installation		N/A
10.4.2	Requirements for enclosures		N/A
	UV radiation exposure.....:	(See Annex C)	N/A
10.4.3	Instructional safeguard..... :		N/A
<b>10.5</b>	<b>Safeguards against X-radiation</b>		N/A
10.5.1	Requirements		N/A
	Instructional safeguard for skilled persons.....:		—
10.5.3	Maximum radiation (pA/kg).....:		—
<b>10.6</b>	<b>Safeguards against acoustic energy sources</b>		N/A
10.6.1	General		N/A
10.6.2	Classification		N/A
	Acoustic output $L_{Aeq,T}$ , dB(A).....:		N/A
	Unweighted RMS output voltage (mV).....:		N/A

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Clause	Requirement-Test	Result-Remark	Verdict
	Digital output signal (dBFS)..... : .....		N/A
10.6.3	Requirements for dose-based systems		N/A
10.6.3.1	General requirements		N/A
10.6.3.2	Dose-based warning and automatic decrease		N/A
10.6.3.3	Exposure-based warning and requirements		N/A
	30 s integrated exposure level (MEL30)..... : .....		N/A
	Warning for MEL ≥ 100 dB(A)..... : .....		N/A
10.6.4	Measurement methods		N/A
10.6.5	Protection of persons		N/A
	Instructional safeguards..... : .....		N/A
10.6.6	Requirements for listening devices (headphones, earphones, etc.)		N/A
10.6.6.1	Corded listening devices with analogue input		N/A
	Listening device input voltage (mV)..... : .....		N/A
10.6.6.2	Corded listening devices with digital input		N/A
	Max. acoustic output $L_{Aeq,T}$ , dB(A)..... : .....		N/A
10.6.6.3	Cordless listening devices		N/A
	Max. acoustic output $L_{Aeq,T}$ , dB(A)..... : .....		N/A

<b>B</b>	<b>NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS</b>		P
<b>B.1</b>	<b>General</b>		P
B.1.5	Temperature measurement conditions	(See appended table B.1.5)	P
<b>B.2</b>	<b>Normal operating conditions</b>		P
B.2.1	General requirements..... : .....	(See Test Item Particulars and appended test tables)	P
	Audio Amplifiers and equipment with audio amplifiers..... : .....	(See Annex E)	N/A
B.2.3	Supply voltage and tolerances		N/A
B.2.5	Input test..... : .....	(See appended table B.2.5)	P
<b>B.3</b>	<b>Simulated abnormal operating conditions</b>		N/A

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Clause	Requirement-Test	Result-Remark	Verdict
B.3.1	General		N/A
B.3.2	Covering of ventilation openings	No ventilation openings.	N/A
	Instructional safeguard..... :		N/A
B.3.3	DC mains polarity test		N/A
B.3.4	Setting of voltage selector	No setting of voltage selector within the EUT	N/A
B.3.5	Maximum load at output terminals	No output terminals	N/A
B.3.6	Reverse battery polarity	No reverse battery polarity	N/A
B.3.7	Audio amplifier abnormal operating conditions	Not such equipment.	N/A
B.3.8	Safeguards functional during and after abnormal operating conditions..... :	All safeguards remained effective.	N/A
<b>B.4</b>	<b>Simulated single fault conditions</b>		P
B.4.1	General		P
B.4.2	Temperature controlling device	No such device used.	N/A
B.4.3	Blocked motor test	No motor used	N/A
B.4.4	Functional insulation	See the following details.	P
B.4.4.1	Short circuit of clearances for functional insulation	(See appended table B.3 &B.4)	P
B.4.4.2	Short circuit of creepage distances for functional insulation	(See appended table B.3 &B.4)	P
B.4.4.3	Short circuit of functional insulation on coated printed boards		N/A
B.4.5	Short-circuit and interruption of electrodes in tubes and semiconductors	(See appended table B.3 &B.4)	P
B.4.6	Short circuit or disconnection of passive components	(See appended table B.3 &B.4)	P
B.4.7	Continuous operation of components		N/A
B.4.8	Compliance during and after single fault conditions .....	(See appended table B.4)	P
B.4.9	Battery charging and discharging under single fault conditions	See Annex M	P
<b>C</b>	<b>UV RADIATION</b>		N/A
<b>C.1</b>	<b>Protection of materials in equipment from UV radiation</b>		N/A

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Clause	Requirement-Test	Result-Remark	Verdict
C.1.2	Requirements	No such UV generated from the equipment.	N/A
C.1.3	Test method		N/A
<b>C.2</b>	<b>UV light conditioning test</b>		N/A
C.2.1	Test apparatus.....:		N/A
C.2.2	Mounting of test samples		N/A
C.2.3	Carbon-arc light-exposure test		N/A
C.2.4	Xenon-arc light-exposure test		N/A
<b>D</b>	<b>TEST GENERATORS</b>		N/A
<b>D.1</b>	<b>Impulse test generators</b>		N/A
<b>D.2</b>	<b>Antenna interface test generator</b>		N/A
<b>D.3</b>	<b>Electronic pulse generator</b>		N/A
<b>E</b>	<b>TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS</b>		N/A
<b>E.1</b>	<b>Electrical energy source classification for audio signals</b>		N/A
	Maximum non-clipped output power (W).....:		—
	Rated load impedance ( $\Omega$ ) .....		—
	Open-circuit output voltage (V).....:		—
	Instructional safeguard.....:		—
<b>E.2</b>	<b>Audio amplifier normal operating conditions</b>		N/A
	Audio signal source type.....:		—
	Audio output power (W).....:		—
	Audio output voltage (V).....:		—
	Rated load impedance ( $\Omega$ ) .....		—
	Requirements for temperature measurement		N/A
<b>E.3</b>	Audio amplifier abnormal operating conditions		N/A
<b>F</b>	<b>EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS</b>		P
<b>F.1</b>	<b>General</b>		P
	Language .....	English	—
<b>F.2</b>	<b>Letter symbols and graphical symbols</b>		P
<b>F.2.1</b>	Letter symbols according to IEC60027-1	Letter symbols for quantities and	P

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Clause	Requirement-Test	Result-Remark	Verdict
		units comply with IEC 60227-1	
F.2.2	Graphic symbols according to IEC, ISO or manufacturer specific	Graphic symbols are complied with IEC 60417, ISO 3864-2, ISO 7000 or ISO 7010	P
<b>F.3</b>	<b>Equipment markings</b>		P
F.3.1	Equipment marking locations	Equipment marking is located on the enclosure surface and is easily visible.	P
F.3.2	Equipment identification markings	See the following details.	P
F.3.2.1	Manufacturer identification .....	See copy of marking plate	P
F.3.2.2	Model identification .....	See copy of marking plate	P
F.3.3	Equipment rating markings		P
F.3.3.1	Equipment with direct connection to mains	Class III equipment	N/A
F.3.3.2	Equipment without direct connection to mains	See below.	P
F.3.3.3	Nature of the supply voltage.....:	---	P
F.3.3.4	Rated voltage.....:	3.0VDC	P
F.3.3.5	Rated frequency.....:	DC supply	N/A
F.3.3.6	Rated current or rated power.....:		P
F.3.3.7	Equipment with multiple supply connections		N/A
F.3.4	Voltage setting device		N/A
F.3.5	Terminals and operating devices		N/A
F.3.5.1	Mains appliance outlet and socket-outlet markings .....		N/A
F.3.5.2	Switch position identification marking.....:		N/A
F.3.5.3	Replacement fuse identification and rating markings.....:		N/A
	Instructional safeguards for neutral fuse.....:		N/A
F.3.5.4	Replacement battery identification marking..... :		N/A
F.3.5.5	Neutral conductor terminal		N/A
F.3.5.6	Terminal marking location		N/A
F.3.6	Equipment markings related to equipment classification		N/A

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Clause	Requirement-Test	Result-Remark	Verdict
F.3.6.1	Class I equipment	Class III equipment	N/A
F.3.6.1.1	Protective earthing conductor terminal.....:		N/A
F.3.6.1.2	Protective bonding conductor terminals .....		N/A
F.3.6.2	Equipment class marking..... :		N/A
F.3.6.3	Functional earthing terminal marking..... :		N/A
F.3.7	Equipment IP rating marking..... :		N/A
F.3.8	External power supply output marking.....:		N/A
F.3.9	Durability, legibility and permanence of marking	Marking is considered to be legible and easily discernible. See also the following details.	P
F.3.10	Test for permanence of markings	The label was subjected to the permanence of marking test. The label was rubbed with cloth soaked with water for 15 sec. And then again for 15 sec. With the cloth soaked with petroleum spirit. After this test there was no damage to the label. The marking on the label did not fade. There was no curling and lifting of the label edge. After each test, the marking remained legible.	P
<b>F.4</b>	<b>Instructions</b>		P
a)	Information prior to installation and initial use	Provided in user manual.	P
b)	Equipment for use in locations where children not likely to be present		N/A
c)	Instructions for installation and interconnection	Instruction in user manual.	P
d)	Equipment intended for use only in restricted access area	Not used in restricted access area.	N/A
e)	Equipment intended to be fastened in place	Equipment is not intended to be fastened in place.	N/A
f)	Instructions for audio equipment terminals		N/A
g)	Protective earthing used as a safeguard	Class III equipment.	N/A
h)	Protective conductor current exceeding ES2	Class III equipment.	N/A

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Clause	Requirement-Test	Result-Remark	Verdict
	limits		
	i) Graphic symbols used on equipment		P
	j) Permanently connected equipment not provided with all-pole mains switch		N/A
	k) Replaceable components or modules providing safeguard function		N/A
	l) Equipment containing insulating liquid		N/A
	m) Installation instructions for outdoor equipment		N/A
<b>F.5</b>	Instructional safeguards		P
<b>G</b>	<b>COMPONENTS</b>		P
<b>G.1</b>	<b>Switches</b>		N/A
G.1.1	General	No switch	N/A
G.1.2	Ratings, endurance, spacing, maximum load		N/A
G.1.3	Test method and compliance		N/A
<b>G.2</b>	<b>Relays</b>		N/A
G.2.1	Requirements		N/A
G.2.2	Overload test		N/A
G.2.3	Relay controlling connectors supplying power to other equipment		N/A
G.2.4	Test method and compliance		N/A
<b>G.3</b>	<b>Protective devices</b>		N/A
G.3.1	Thermal cut-offs		N/A
	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)		N/A
	Thermal cut-outs tested as part of the equipment as indicated in c)		N/A
G.3.1.2	Test method and compliance		N/A
G.3.2	Thermal links		N/A
G.3.2.1	a) Thermal links tested separately according to IEC 60691 with specifics		N/A
	b) Thermal links tested as part of the equipment		N/A

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Clause	Requirement-Test	Result-Remark	Verdict
G.3.2.2	Test method and compliance		N/A
G.3.3	PTC thermistors		N/A
G.3.4	Overcurrent protection devices		N/A
G.3.5	Safeguards components not mentioned in G.3.1 to G.3.4		N/A
G.3.5.1	Non-resettable devices suitably rated and marking provided		N/A
G.3.5.2	Single faults conditions.....:	(See appended table B.4)	N/A
<b>G.4</b>	<b>Connectors</b>		N/A
G.4.1	Spacings	Not directly connected to mains	N/A
G.4.2	Mains connector configuration.....:		N/A
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely	No such connector.	N/A
<b>G.5</b>	<b>Wound components</b>		N/A
G.5.1	Wire insulation in wound components	No Wound Components	N/A
G.5.1.2	Protection against mechanical stress		N/A
G.5.2	Endurance test		N/A
G.5.2.1	General test requirements		N/A
G.5.2.2	Heat run test		N/A
	Test time (days per cycle).....:	—	—
	Test temperature (°C).....:	—	—
G.5.2.3	Wound components supplied from the mains		N/A
G.5.2.4	No insulation breakdown		N/A
G.5.3	Transformers	No Transformers	N/A
G.5.3.1	Compliance method.....:		N/A
	Position.....:		N/A
	Method of protection.....:		N/A
G.5.3.2	Insulation		N/A
	Protection from displacement of windings.....:	—	—
G.5.3.3	Transformer overload tests		N/A

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Clause	Requirement-Test	Result-Remark	Verdict
G.5.3.3.1	Test conditions		N/A
G.5.3.3.2	Winding temperatures		N/A
G.5.3.3.3	Winding temperatures - alternative test method		N/A
G.5.3.4	Transformers using FIW		N/A
G.5.3.4.1	General		N/A
	FIW wire nominal diameter..... :		—
G.5.3.4.2	Transformers with basic insulation only		N/A
G.5.3.4.3	Transformers with double insulation or reinforced insulation..... :		N/A
G.5.3.4.4	Transformers with FIW wound on metal or ferrite core		N/A
G.5.3.4.5	Thermal cycling test and compliance		N/A
G.5.3.4.6	Partial discharge test		N/A
G.5.3.4.7	Routine test		N/A
G.5.4	Motors	No motors used.	N/A
G.5.4.1	General requirements		N/A
G.5.4.2	Motor overload test conditions		N/A
G.5.4.3	Running overload test		N/A
G.5.4.4.2	Locked-rotor overload test		N/A
	Test duration (days) .....		—
G.5.4.5	Running overload test for DC motors		N/A
G.5.4.5.2	Tested in the unit		N/A
G.5.4.5.3	Alternative method		N/A
G.5.4.6	Locked-rotor overload test for DC motors		N/A
G.5.4.6.2	Tested in the unit		N/A
	Maximum Temperature .....		N/A
G.5.4.6.3	Alternative method		N/A
G.5.4.7	Motors with capacitors		N/A
G.5.4.8	Three-phase motors		N/A
G.5.4.9	Series motors		N/A

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Clause	Requirement-Test	Result-Remark	Verdict
	Operating voltage ..... : .....		—
<b>G.6</b>	<b>Wire Insulation</b>		N/A
G.6.1	General	No Wire Insulation	N/A
G.6.2	Enamelled winding wire insulation		N/A
<b>G.7</b>	<b>Mains supply cords</b>		N/A
G.7.1	General requirements	No mains cord provided.	N/A
	Type..... : .....		—
G.7.2	Cross sectional area (mm <sup>2</sup> or AWG)..... : .....		N/A
G.7.3	Cord anchorages and strain relief for non-detachable power supply cords		N/A
G.7.3.2	Cord strain relief		N/A
G.7.3.2.1	Requirements		N/A
	Strain relief test force (N)..... : .....		N/A
G.7.3.2.2	Strain relief mechanism failure		N/A
G.7.3.2.3	Cord sheath or jacket position, distance (mm)..... : .....		N/A
G.7.3.2.4	Strain relief and cord anchorage material		N/A
G.7.4	Cord Entry		N/A
G.7.5	Non-detachable cord bend protection		N/A
G.7.5.1	Requirements		N/A
G.7.5.2	Test method and compliance		N/A
	Overall diameter or minor overall dimension, D (mm)..... : .....		—
	Radius of curvature after test (mm)..... : .....		—
G.7.6	Supply wiring space		N/A
G.7.6.1	General requirements		N/A
G.7.6.2	Stranded wire		N/A
G.7.6.2.1	Requirements		N/A
G.7.6.2.2	Test with 8 mm strand		N/A
<b>G.8</b>	<b>Varistors</b>		N/A
G.8.1	General requirements		N/A

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Clause	Requirement-Test	Result-Remark	Verdict
G.8.2	Safeguards against fire		N/A
G.8.2.1	General		N/A
G.8.2.2	Varistor overload test		N/A
G.8.2.3	Temporary overvoltage test		N/A
<b>G.9</b>	<b>Integrated circuit (IC) current limiters</b>		N/A
G.9.1	Requirements	No IC current limiter provided within the equipment.	N/A
	IC limiter output current (max. 5A).....:	—	—
	Manufacturers' defined drift .....	—	—
G.9.2	Test Program		N/A
G.9.3	Compliance		N/A
<b>G.10</b>	<b>Resistors</b>		N/A
G.10.1	General	No such resistors	N/A
G.10.2	Conditioning		N/A
G.10.3	Resistor test		N/A
G.10.4	Voltage surge test		N/A
G.10.5	Impulse test		N/A
G.10.6	Overload test		N/A
<b>G.11</b>	<b>Capacitors and RC units</b>		N/A
G.11.1	General requirements	No such Capacitor and RC units	N/A
G.11.2	Conditioning of capacitors and RC units		N/A
G.11.3	Rules for selecting capacitors		N/A
<b>G.12</b>	<b>Optocouplers</b>		N/A
	Optocouplers comply with IEC 60747-5-5 with specifics	No such Optocouplers	N/A
	Type test voltage $V_{ini,a}$ .....:	—	—
	Routine test voltage, $V_{ini, b}$ .....:	—	—
<b>G.13</b>	<b>Printed boards</b>		P
G.13.1	General requirements	See the following details.	P
G.13.2	Uncoated printed boards	Only need to comply with functional	P

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Clause	Requirement-Test	Result-Remark	Verdict
		insulation, see annex B.4.4	
G.13.3	Coated printed boards		N/A
G.13.4	Insulation between conductors on the same inner surface		N/A
G.13.5	Insulation between conductors on different surfaces		N/A
	Distance through insulation.....:		N/A
	Number of insulation layers (pcs) .....	—	—
G.13.6	Tests on coated printed boards		N/A
G.13.6.1	Sample preparation and preliminary inspection		N/A
G.13.6.2	Test method and compliance		N/A
<b>G.14</b>	<b>Coating on components terminals</b>		N/A
G.14.1	Requirements .....	No coating on component terminals considered to affect creepage or clearances.	N/A
<b>G.15</b>	<b>Pressurized liquid filled components</b>		N/A
G.15.1	Requirements	No such device provided within the equipment.	N/A
G.15.2	Test methods and compliance		N/A
G.15.2.1	Hydrostatic pressure test		N/A
G.15.2.2	Creep resistance test		N/A
G.15.2.3	Tubing and fittings compatibility test		N/A
G.15.2.4	Vibration test		N/A
G.15.2.5	Thermal cycling test		N/A
G.15.2.6	Force test		N/A
G.15.3	Compliance		N/A
<b>G.16</b>	<b>IC including capacitor discharge function (ICX)</b>		N/A
G.16.1	Condition for fault tested is not required		N/A
	ICX with associated circuitry tested in equipment		N/A
	ICX tested separately		N/A
G.16.2	Tests		N/A
	Smallest capacitance and smallest resistance	—	—

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Clause	Requirement-Test	Result-Remark	Verdict
	specified by ICX manufacturer for impulse test..... :		
	Mains voltage that impulses to be superimposed on ..... :		—
	Largest capacitance and smallest resistance for ICX tested by itself for 10000 cycles test..... :		—
G.16.3	Capacitor discharge test..... :		N/A
<b>H</b>	<b>CRITERIA FOR TELEPHONE RINGING SIGNALS</b>		N/A
<b>H.1</b>	<b>General</b>		N/A
<b>H.2</b>	<b>Method A</b>		N/A
<b>H.3</b>	<b>Method B</b>		N/A
H.3.1	Ringing signal		N/A
H.3.1.1	Frequency (Hz) ..... :		—
H.3.1.2	Voltage (V) ..... :		—
H.3.1.3	Cadence; time (s) and voltage (V) ..... :		—
H.3.1.4	Single fault current (mA):..... :		—
H.3.2	Tripping device and monitoring voltage		N/A
H.3.2.1	Conditions for use of a tripping device or a monitoring voltage		N/A
H.3.2.2	Tripping device		N/A
H.3.2.3	Monitoring voltage (V)..... :		N/A
<b>J</b>	<b>INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION</b>		N/A
<b>J.1</b>	<b>General</b>		N/A
	Winding wire insulation..... :		—
	Solid round winding wire, diameter (mm)..... :		N/A
	Solid square and rectangular (flatwise bending) winding wire, cross-sectional area (mm <sup>2</sup> )..... :		N/A
<b>J.2/J.3</b>	Tests and Manufacturing		—
<b>K</b>	<b>SAFETY INTERLOCKS</b>		N/A
<b>K.1</b>	<b>General requirements</b>		N/A
	Instructional safeguard..... :		N/A
<b>K.2</b>	<b>Components of safety interlock safeguard mechanism</b>		N/A

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Clause	Requirement-Test	Result-Remark	Verdict
<b>K.3</b>	<b>Inadvertent change of operating mode</b>		N/A
<b>K.4</b>	<b>Interlock safeguard override</b>		N/A
<b>K.5</b>	<b>Fail-safe</b>		N/A
K.5.1	Under single fault condition		N/A
<b>K.6</b>	<b>Mechanically operated safety interlocks</b>		N/A
K.6.1	Endurance requirement		N/A
K.6.2	Test method and compliance.....:		N/A
<b>K.7</b>	<b>Interlock circuit isolation</b>		N/A
K.7.1	Separation distance for contact gaps & interlock circuit elements		N/A
	In circuit connected to mains, separation distance for contact gaps (mm).....:		N/A
	In circuit isolated from mains, separation distance for contact gaps (mm).....:		N/A
	Electric strength test before and after the test of K.7.2.....:	(See appended table 5.4.9)	N/A
K.7.2	Overload test, Current (A).....:		N/A
K.7.3	Endurance test		N/A
K.7.4	Electric strength test		N/A
<b>L</b>	<b>DISCONNECT DEVICES</b>		N/A
<b>L.1</b>	<b>General requirements</b>		N/A
<b>L.2</b>	<b>Permanently connected equipment</b>		N/A
<b>L.3</b>	<b>Parts that remain energized</b>		N/A
<b>L.4</b>	<b>Single-phase equipment</b>		N/A
<b>L.5</b>	<b>Three-phase equipment</b>		N/A
<b>L.6</b>	<b>Switches as disconnect devices</b>		N/A
<b>L.7</b>	<b>Plugs as disconnect devices</b>		N/A
<b>L.8</b>	<b>Multiple power sources</b>		N/A
	Instructional safeguard.....:		N/A
<b>M</b>	<b>EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS</b>		P
<b>M.1</b>	<b>General requirements</b>		P

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Clause	Requirement-Test	Result-Remark	Verdict
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<b>M.2</b>	<b>Safety of batteries and their cells</b>		P
M.2.1	Batteries and their cells comply with relevant IEC standards.....:	The cells comply with IEC 60086-4:2014.  (See appended table 4.1.2)	P
<b>M.3</b>	<b>Protection circuits for batteries provided within the equipment</b>		P
M.3.1	Requirements		P
M.3.2	Test method		P
	Overcharging of a rechargeable battery	Non-rechargeable batteries	N/A
	Excessive discharging		P
	Unintentional charging of a non-rechargeable battery		N/A
	Reverse charging of a rechargeable battery	Non-rechargeable batteries	N/A
M.3.3	Compliance	No chemical leakage, no spillage of liquid, no explosion of the battery, no emission of flame or expulsion of molten metal.	P
<b>M.4</b>	<b>Additional safeguards for equipment containing a portable secondary lithium battery</b>		N/A
M.4.1	General		N/A
M.4.2	Charging safeguards		N/A
M.4.2.1	Requirements		N/A
M.4.2.2	Compliance.....:		N/A
M.4.3	Fire enclosure.....:		N/A
M.4.4	Drop test of equipment containing a secondary lithium battery		N/A
M.4.4.2	Preparation and procedure for the drop test		N/A
M.4.4.3	Drop, Voltage on reference and dropped batteries (V); voltage difference during 24 h period (%): .....:		N/A
M.4.4.4	Check of the charge/discharge function		N/A

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Clause	Requirement-Test	Result-Remark	Verdict
M.4.4.5	Charge / discharge cycle test		N/A
M.4.4.6	Compliance		N/A
<b>M.5</b>	<b>Risk of burn due to short-circuit during carrying</b>		N/A
M.5.1	Requirement		N/A
M.5.2	Test method and compliance		N/A
<b>M.6</b>	<b>Safeguards against short-circuits</b>		P
M.6.1	External and internal faults	The battery complied with IEC 60086-4:2014. which is considered the internal fault tests. No such explosion or fire likely to result from short circuits.	P
M.6.2	Compliance		N/A
<b>M.7</b>	<b>Risk of explosion from lead acid and NiCd batteries</b>		N/A
M.7.1	Ventilation preventing explosive gas concentration		N/A
	Calculated hydrogen generation rate..... :		N/A
M.7.2	Test method and compliance		N/A
	Minimum air flow rate, Q (m <sup>3</sup> /h).....:		N/A
M.7.3	Ventilation tests		N/A
M.7.3.1	General		N/A
M.7.3.2	Ventilation test – alternative 1		N/A
	Hydrogen gas concentration (%). ....:		N/A
M.7.3.3	Ventilation test – alternative 2		N/A
	Obtained hydrogen generation rate.....:		N/A
M.7.3.4	Ventilation test – alternative 3		N/A
	Hydrogen gas concentration (%). ....:		N/A
M.7.4	Marking.....:		N/A
<b>M.8</b>	<b>Protection against internal ignition from external spark sources of batteries with aqueous electrolyte</b>		N/A
M.8.1	General		N/A
M.8.2	Test method		N/A
M.8.2.1	General		N/A

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Clause	Requirement-Test	Result-Remark	Verdict
M.8.2.2	Estimation of hypothetical volume $V_Z$ ( $\text{m}^3/\text{s}$ )..... :		—
M.8.2.3	Correction factors..... :		—
M.8.2.4	Calculation of distance $d$ (mm) .....		—
<b>M.9</b>	<b>Preventing electrolyte spillage</b>		N/A
M.9.1	Protection from electrolyte spillage		N/A
M.9.2	Tray for preventing electrolyte spillage		N/A
<b>M.10</b>	Instructions to prevent reasonably foreseeable misuse	Similar statement mentioned in the instructions	P
	Instructional safeguard..... :		N/A
<b>N</b>	<b>ELECTROCHEMICAL POTENTIALS</b>		N/A
	Material(s) used..... :		—
<b>O</b>	<b>MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES</b>		N/A
	Value of $X$ (mm)..... :		—
<b>P</b>	<b>SAFEGUARDS AGAINST CONDUCTIVE OBJECTS</b>		N/A
<b>P.1</b>	<b>General</b>	No opening	N/A
<b>P.2</b>	<b>Safeguards against entry or consequences of entry of a foreign object</b>		N/A
P.2.1	General		N/A
P.2.2	Safeguards against entry of a foreign object		N/A
	Location and Dimensions (mm) .....		—
P.2.3	Safeguards against the consequences of entry of a foreign object		N/A
P.2.3.1	Safeguard requirements		N/A
	The ES3 and PS3 keep-out volume in Figure P.3 not applicable to transportable equipment		N/A
	Transportable equipment with metalized plastic parts..... :		N/A
P.2.3.2	Consequence of entry test..... :		N/A
<b>P.3</b>	<b>Safeguards against spillage of internal liquids</b>		N/A
P.3.1	General		N/A
P.3.2	Determination of spillage consequences		N/A
P.3.3	Spillage safeguards		N/A

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Clause	Requirement-Test	Result-Remark	Verdict
P.3.4	Compliance		N/A
<b>P.4</b>	<b>Metallized coatings and adhesives securing parts</b>		N/A
P.4.1	General		N/A
P.4.2	Tests		N/A
	Conditioning, $T_c$ ( $^{\circ}$ C).....:		—
	Duration (weeks).....:		—
<b>Q</b>	<b>CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING</b>		N/A
<b>Q.1</b>	<b>Limited power sources</b>		N/A
Q.1.1	Requirements		N/A
	a) Inherently limited output		N/A
	b) Impedance limited output		N/A
	c) Regulating network limited output		N/A
	d) Overcurrent protective device limited output		N/A
	e) IC current limiter complying with G.9		N/A
Q.1.2	Test method and compliance.....: (See appended table Q.1)		N/A
	Current rating of overcurrent protective device (A) .....		N/A
<b>Q.2</b>	<b>Test for external circuits – paired conductor cable</b>		N/A
	Maximum output current (A) .....		N/A
	Current limiting method.....:		—
<b>R</b>	<b>LIMITED SHORT CIRCUIT TEST</b>		N/A
<b>R.1</b>	<b>General</b>		N/A
<b>R.2</b>	<b>Test setup</b>		N/A
	Overcurrent protective device for test.....:		—
<b>R.3</b>	<b>Test method</b>		N/A
	Cord/cable used for test.....:		—
<b>R.4</b>	<b>Compliance</b>		N/A
<b>S</b>	<b>TESTS FOR RESISTANCE TO HEAT AND FIRE</b>		N/A
<b>S.1</b>	<b>Flammability test for fire enclosures and fire barrier materials of equipment where</b>		N/A

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Clause	Requirement-Test	Result-Remark	Verdict
	<b>the steady state power does not exceed 4 000 W</b>		
	Samples, material.....:		—
	Wall thickness (mm).....:		—
	Conditioning (°C)..... :		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	- Material not consumed completely		N/A
	- Material extinguishes within 30s		N/A
	- No burning of layer or wrapping tissue		N/A
<b>S.2</b>	<b>Flammability test for fire enclosure and fire barrier integrity</b>		
	Samples, material.....:		—
	Wall thickness (mm).....:		—
	Conditioning (°C)..... :		—
<b>S.3</b>	<b>Flammability test for the bottom of a fire enclosure</b>		
S.3.1	Mounting of samples		N/A
S.3.2	Test method and compliance		N/A
	Mounting of samples .....		—
	Wall thickness (mm).....:		—
<b>S.4</b>	<b>Flammability classification of materials</b>		
<b>S.5</b>	<b>Flammability test for fire enclosure materials of equipment with a steady state power exceeding 4 000 W</b>		
	Samples, material.....:		—
	Wall thickness (mm).....:		—
	Conditioning (°C)..... :		—
<b>T</b>	<b>MECHANICAL STRENGTH TESTS</b>		
<b>T.1</b>	<b>General</b>		
<b>T.2</b>	<b>Steady force test, 10 N .....</b> :		N/A
<b>T.3</b>	<b>Steady force test, 30 N .....</b> :		N/A
<b>T.4</b>	<b>Steady force test, 100 N .....</b> :		N/A

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Clause	Requirement-Test	Result-Remark	Verdict
T.5	<b>Steady force test, 250 N .....</b> : :	(See appended table T.5)	P
T.6	<b>Enclosure impact test</b>	(See appended table T.6)	P
	Fall test	(See appended table T.6)	P
	Swing test		N/A
T.7	<b>Drop test .....</b> :		N/A
T.8	<b>Stress relief test.....</b> : :	(See appended table T.8)	P
T.9	<b>Glass Impact Test.....</b> :		N/A
T.10	<b>Glass fragmentation test</b>		N/A
	Number of particles counted.....: :		N/A
T.11	<b>Test for telescoping or rod antennas</b>		N/A
	Torque value (Nm) .....: :		N/A
U	<b>MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION</b>		N/A
U.1	<b>General</b>		N/A
	Instructional safeguard : :		N/A
U.2	<b>Test method and compliance for non-intrinsically protected CRTs</b>		N/A
U.3	<b>Protective screen</b>		N/A
V	<b>DETERMINATION OF ACCESSIBLE PARTS</b>		N/A
V.1	<b>Accessible parts of equipment</b>		N/A
V.1.1	General		N/A
V.1.2	Surfaces and openings tested with jointed test probes		N/A
V.1.3	Openings tested with straight unjointed test probes		N/A
V.1.4	Plugs, jacks, connectors tested with blunt probe		N/A
V.1.5	Slot openings tested with wedge probe		N/A
V.1.6	Terminals tested with rigid test wire		N/A
V.2	<b>Accessible part criterion</b>		N/A
X	<b>ALTERNATIVE METHOD FOR DETERMINING CLEARANCES FOR INSULATION IN CIRCUITS CONNECTED TO AN AC MAINS NOT EXCEEDING 420 V PEAK (300 V RMS)</b>		N/A
	Clearance.....: :	(See appended table X)	N/A

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Clause	Requirement-Test	Result-Remark	Verdict
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<b>Y</b>	<b>CONSTRUCTION REQUIREMENTS FOR OUTDOOR ENCLOSURES</b>		N/A
<b>Y.1</b>	<b>General</b>		N/A
<b>Y.2</b>	<b>Resistance to UV radiation</b>		N/A
<b>Y.3</b>	<b>Resistance to corrosion</b>		N/A
<b>Y.3</b>	<b>Resistance to corrosion</b>		N/A
Y.3.1	Metallic parts of outdoor enclosures are resistant to effects of water-borne contaminants by.....:		N/A
Y.3.2	Test apparatus		N/A
Y.3.3	Water – saturated sulphur dioxide atmosphere		N/A
Y.3.4	Test procedure.....:		N/A
Y.3.5	Compliance		N/A
<b>Y.4</b>	<b>Gaskets</b>		N/A
Y.4.1	General		N/A
Y.4.2	Gasket tests		N/A
Y.4.3	Tensile strength and elongation tests		N/A
	Alternative test methods.....:		N/A
Y.4.4	Compression test		N/A
Y.4.5	Oil resistance		N/A
Y.4.6	Securing means	(See Annex P.4)	N/A
<b>Y.5</b>	<b>Protection of equipment within an outdoor enclosure</b>		N/A
Y.5.1	General		N/A
Y.5.2	Protection from moisture		N/A
	Relevant tests of IEC 60529 or Y.5.3.....:		N/A
Y.5.3	Water spray test		N/A
Y.5.4	Protection from plants and vermin		N/A
Y.5.5	Protection from excessive dust		N/A
Y.5.5.1	General		N/A
Y.5.5.2	IP5X equipment		N/A
Y.5.5.3	IP6X equipment		N/A
<b>Y.6</b>	<b>Mechanical strength of enclosures</b>		N/A

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Clause	Requirement-Test	Result-Remark	Verdict
Y.6.1	General		N/A
Y.6.2	Impact test..... : (See Table T.6)		N/A

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Clause	Requirement-Test	Result-Remark	Verdict

**ATTACHMENT TO TEST REPORT**

IEC 62368-1

(AUSTRALIA / NEW ZEALAND) NATIONAL DIFFERENCES  
(Audio/video, information and communication technology equipment)**Differences according to.....:** AS/NZS 62368.1:2018**TRF template used:** IECEE OD-2020-F3, Ed. 1.1**Attachment Form No.**: AU\_NZ\_ND\_IEC62368\_1D**Attachment Originator**: JAS-ANZ**Master Attachment**: 2021-12-21**Copyright © 2021 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved.**

	<b>National Differences</b>	P
<b>Appendix ZZ</b>	Variations to IEC 62368-1:2014 (ED. 2.0) for Australia and New Zealand	P
<b>ZZ1 Scope</b>	This Appendix lists the normative variations to IEC 62368-1:2014 (ED. 2.0)	P
<b>ZZ2 Variations</b>	The following modifications are required for Australian/New Zealand conditions:	P
<b>2</b>	<p>Add the following to the list of normative references:</p> <p>The following normative documents are referenced in Appendix ZZ:</p> <ul style="list-style-type: none"> <li>-AS/NZS 3112, Approval and test specification—Plugs and socket-outlets</li> <li>-AS/NZS 3123, Approval and test specification—Plugs, socket-outlets and couplers for general industrial application</li> <li>-AS/NZS 3191, Electric flexible cords</li> <li>-AS/NZS 60065, Audio, video and similar electronic apparatus—Safety requirements (IEC 60065:2015 (ED.8.0) MOD)</li> <li>-AS/NZS 60320.1, Appliance couplers for household and similar general purposes, Part 1: General requirements (IEC 60320-1, Ed.2.1 (2007) MOD)</li> <li>-AS/NZS 60320.2.2, Appliance couplers for</li> </ul>	P

## IEC 62368-1

Clause	Requirement-Test	Result-Remark	Verdict
	<p><i>household and similar general purposes</i></p> <p><i>Part 2.2: Interconnection couplers for household and similar equipment (IEC 60320-2-2, Ed.2.0 (1998) MOD)</i></p> <p><i>-AS/NZS 60695.2.11, Fire hazard testing, Part 2.11: Glowing/hot wire based test methods—Glow-wire flammability test method for end-products</i></p> <p><i>-AS/NZS 60695.11.5, Fire hazard testing, Part 11.5: Test flames—Needle-flame test method—Apparatus, confirmatory test arrangement and guidance</i></p> <p><i>-AS/NZS 60695.11.10, Fire hazard testing, Part 11.10: Test flames—50 W horizontal and vertical flame test methods</i></p> <p><i>-AS/NZS 60884.1, Plugs and socket-outlets for household and similar purposes,</i></p> <p><i>Part 1: General requirements</i></p> <p><i>-AS/NZS 60950.1:2015, Information technology equipment—Safety, Part 1: General requirements (IEC 60950-1, Ed.2.2 (2013), MOD)</i></p> <p><i>IEC 61032:1997, Protection of persons and equipment by enclosures—Probes for verification</i></p> <p><i>-AS/NZS 61558.1:2008 (including Amendment 2:2015), Safety of Power Transformers, Power Supplies, Reactors and Similar Products, Part 1: General requirements and tests (IEC 61558-1 Ed 2.1, MOD)</i></p> <p><i>-AS/NZS 61558.2.16, Safety of transformers, reactors, power supply units and similar products for voltages up to 1 100 V, Part 2.16: Particular requirements and tests for switch mode power supply units and transformers for switch mode power supply units.</i></p>		
4.1.1	<p><b>Application of requirements and acceptance of materials, components and subassemblies</b></p> <p>1 Replace the text 'IEC 60950-1' with 'AS/NZS 60950.1:2015'.</p> <p>2 Replace the text 'IEC 60065' with 'AS/NZS 60065'.</p>		P

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Clause	Requirement-Test	Result-Remark	Verdict
<b>4.7</b>	<b>Equipment for direct insertion into mains socket-outlets</b>		N/A
<b>4.7.2</b>	<p><b>Requirements</b></p> <p><i>Delete</i> the text of the second paragraph and <i>replace</i> with the following:</p> <p>Equipment with a plug portion, suitable for insertion into a 10 A 3-pin flat-pin socket-outlet complying with AS/NZS 3112 shall comply with the requirements in AS/NZS 3112 for equipment with integral pins for insertion into socket-outlets.</p>		N/A
<b>4.7.3</b>	<p><b>Compliance Criteria</b></p> <p><i>Delete</i> the first paragraph and Note 1 and Note 2 and <i>replace</i> with the following:</p> <p><i>Compliance is checked by inspection and, if necessary, by the tests in AS/NZS 3112.</i></p>		N/A
<b>4.8</b>	<p><i>Delete</i> existing clause title and <i>replace</i> with the following:</p> <p><b>4.8 Products containing coin/button cell batteries</b></p>		P
<b>4.8.1</b>	<p><b>General</b></p> <p>1 Second dashed point, <i>delete</i> the text and <i>replace</i> with the following:</p> <ul style="list-style-type: none"> <li>– include coin/button cell batteries with a diameter of 32 mm or less.</li> </ul> <p>2 After the second dashed point, <i>insert</i> the following Note:</p> <p>NOTE 1: Batteries are specified in IEC 60086-2.</p> <p>3 After the third dashed point, <i>renumber</i> the existing Note as 'NOTE 2'.</p> <p>4 Fifth dashed point, <i>delete</i> the word 'lithium'.</p>		P
<b>4.8.2</b>	<p><b>Instructional Safeguard</b></p> <p>First line, <i>delete</i> the word 'lithium'.</p>		P
<b>4.8.3</b>	<p><b>Construction</b></p> <p>First line, after the word 'Equipment' <i>insert</i> the words 'containing one or more coin/button batteries and'</p>		P
<b>4.8.5</b>	<p><b>Compliance criteria</b></p> <p><i>Delete</i> the first paragraph and <i>replace</i> with the following:</p>		P

## IEC 62368-1

Clause	Requirement-Test	Result-Remark	Verdict
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	<i>Compliance is checked by applying a force of 30 N +/- 1 N for 10 s to the battery compartment door/cover by a rigid test finger according to test probe 11 of IEC 61032:1997 at the most unfavourable place and in the most unfavourable direction. The force shall be applied in one direction at a time.</i>		
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<b>5.4.10.2</b>	<b>Test methods</b>		N/A
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<b>5.4.10.2.1</b>	<b>General</b>  <i>Delete the first paragraph and replace with the following:</i>  In Australia only, the separation is checked by the test of both Clause 5.4.10.2.2 and Clause 5.4.10.2.3. In New Zealand, the separation is checked by the test of either Clause 5.4.10.2.2 or Clause 5.4.10.2.3.		N/A
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<b>Table 29</b>	<i>Replace the table with the following:</i>		N/A
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Parts	Impulse test		Steady state test		
	New Zealand	Australia	New Zealand	Australia	
Parts indicated in Clause 5.4.10.1 a) <sup>a</sup>	2.5 kV 10/700 µs	7.0 kV for hand-held telephones and headsets, 2.5 kV for other equipment. 10/700 µs	1.5 kV	3 kV	
Parts indicated in Clause 5.4.10.1 b) and c) <sup>b</sup>	1.5 kV 10/700 µs <sup>c</sup>		1.0 kV	1.5 kV	
<sup>a</sup> Surge suppressors shall not be removed. <sup>b</sup> Surge suppressors may be removed, provided that such devices pass the impulse test of Clause 5.4.10.2.2 when tested as components outside the equipment. <sup>c</sup> During this test, it is allowed for a surge suppressor to operate and for a sparkover to occur in a GDT.					

<b>5.4.10.2.2</b>	After the first paragraph, <i>insert</i> new Notes 201 and 202 as follows:  NOTE 201 For Australia, the 7 kV impulse simulates lightning surges on typical rural and semi-rural network lines.  NOTE 202 For Australia, the value of 2.5 kV for Clause 5.4.10.1 a) was chosen to ensure the adequacy of the insulation concerned and does not necessarily simulate likely overvoltages.		N/A
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Clause	Requirement-Test	Result-Remark	Verdict
<b>5.4.10.2.3</b>	<p>After the first paragraph, <i>insert</i> new Notes 201 and 202 as follows:</p> <p>NOTE 201 For Australia, where there are capacitors across the insulation under test, it is recommended that d.c. test voltages are used.</p> <p>NOTE 202 The 3 kV and 1.5 kV values for Australia have been determined considering the low frequency induced voltages from the power supply distribution system.</p>		N/A
<b>6</b>	<b>Electrically-caused fire</b>		P
<b>6.1</b>	<p><b>General</b></p> <p>After the first paragraph, <i>insert</i> the following new paragraph:</p> <p>Alternatively, the requirements of Clauses 6.2 to 6.5.2 are considered to be fulfilled if the equipment complies with the requirements of Clause 6.202</p>		P
<b>6.6</b>	<p>After Clause 6.6, <i>add</i> the new Clauses 6.201 and 6.202 as follows:</p> <p><b>6.201 External power supplies, docking stations and other similar devices</b> and  <b>6.202 Resistance to fire—Alternative tests</b>  (see special national conditions)</p>		N/A
<b>8.5.4</b>	<b>Special categories of equipment comprising moving parts</b>		N/A
<b>8.5.4.1</b>	<b>Large data storage equipment</b>  In the first dashed row and the second dashed rows <i>replace</i> 'IEC 60950-1:2005' with 'AS/NZS 60950.1:2015'.		N/A
<b>8.6</b>	<b>Stability of equipment</b>		N/A
<b>8.6.1 and Table 36</b>	<p><b>Requirements</b></p> <ol style="list-style-type: none"> <li>1. Table 36, <i>insert</i> Footnote c at the end of the 'Glass slide' heading, and <i>add</i> a new Footnote c after the text of Footnote b in the last row of Table 36 as follows: <ul style="list-style-type: none"> <li>◦ The glass slide test is not applicable to floor standing equipment, even though the equipment may have controls or a display.</li> </ul> </li> <li>2. Table 36, fifth row, <i>insert</i> '201' at the end of 'No stability requirements'</li> <li>3. Table 36, ninth row, <i>insert</i> '201' at the end of 'No stability requirements'</li> </ol>		N/A

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Clause	Requirement-Test	Result-Remark	Verdict
	<p>4. Table 36, <i>add</i> the following new footnote:</p> <p>201 MS2 and MS3 television sets and display devices, designed only for fixing to a wall, ceiling or equipment rack, are not subjected to stability requirements only if the instructional safeguard of Clause 8.6.1.201 is provided. Otherwise, the glass slide requirements of Clause 8.6.4 and horizontal force requirements of Clause 8.6.5 apply.</p> <p>5. Second paragraph beneath Table 36, <i>delete</i> the words 'MS2 and MS3 television sets' and <i>replace</i> with 'MS2 and MS3 television sets and display devices'</p>		
<b>8.6.1</b>	<p>After Clause 8.6.1 <i>add</i> the following new clauses:</p> <p><b>8.6.1.201 Instructional safeguard for fixed-mount television sets</b> (see special national conditions)</p>		N/A
<b>Annex F</b> <b>Paragraph F.3.5.1</b>	<p><b>Mains appliance outlet and socket-outlet markings</b> Replace 'IEC 60320-2-2' with 'AS/NZS 60320.2.2'.</p>		N/A
<b>Annex G</b> <b>Paragraph G.4.2</b>	<p><b>Mains connectors</b></p> <p>1 In the second line <i>insert</i> 'or AS/NZS 3123' after 'IEC 60906-1'.</p> <p>2 In the second line <i>insert</i> 'or AS/NZS 60320 series' after 'IEC 60320 series'</p> <p>3 <i>Add</i> the following new paragraph: 10 A or 15 A 250 V flat pin plugs for the connection of equipment to mains-powered socket-outlets for household or similar general use shall comply with AS/NZS 3112 or AS/NZS 60884.1.</p>		N/A
<b>Paragraph G.5.3.1</b>	<p><b>Transformers, General</b></p> <p>1 In the third dashed point <i>replace</i> 'IEC 61558-1 and the relevant parts of IEC 61558-2' with 'AS/NZS 61558-1 and the relevant parts of AS/NZS 61558.2'</p> <p>2 In the fourth dashed point <i>replace</i> 'IEC 61558-2-16' with 'AS/NZS 61558.2.16'.</p>	Replaced	N/A
<b>Paragraph G.7.1</b>	<p><b>Mains supply cords, General</b></p> <p>In the fourth dashed paragraph, <i>replace</i> 'IEC 60320-1' with 'AS/NZS 60320.1'</p>	No such cord provided	N/A
<b>Table G.5</b>	<b>Sizes of conductors</b>		N/A

## IEC 62368-1

Clause	Requirement-Test	Result-Remark	Verdict
	<p>1 In the second row, first column, <i>delete</i> '6' and <i>replace</i> with '7.5'</p> <p>2 In the second row, second column, <i>delete</i> '0,75' and <i>replace</i> with '0.75<sup>b</sup></p> <p>3 <i>Delete</i> Note 1.</p> <p>4 <i>Replace</i> 'NOTE 2' with 'NOTE:'.</p> <p>5 <i>Delete</i> the text of 'Footnote b' and <i>replace</i> with the following:  <sup>b</sup> This nominal cross-sectional area is only allowed for Class II appliances if the length of the power supply cord, measured between the point where the cord, or cord guard, enters the appliance, and the entry to the plug does not exceed 2 m (0.5 mm<sup>2</sup> three-core supply flexible cords are not permitted; see AS/NZS 3191).</p> <p>6 In Footnote c <i>replace</i> 'IEC 60320-1' with 'AS/NZS 60320.1'</p> <p>7 In Footnote d <i>replace</i> 'IEC 60320-1' with 'AS/NZS 60320.1'</p>		
<b>Annex M</b> <b>Paragraph</b> <b>M.3.2</b>	<b>Protection circuits for batteries provided within the equipment, Test method</b>  After the first dashed point <i>add</i> the following Note: NOTE 201: In cases where the voltage source is provided by power from an unassociated power source, consideration should be given to the effects of possible single fault conditions in the unassociated equipment. If the power source is unknown then it should be assumed that the maximum limit of SELV may be applied to the source input under assumed single fault conditions in the source when assessing the charging circuit in the equipment under test.		N/A
	<b>Special national conditions (if any)</b>		N/A
<b>6.201</b>	<b>External power supplies, docking stations and other similar devices</b>  For external power supplies, docking stations and other similar devices, during and after abnormal operating conditions and during single fault conditions the output voltage— – at all ES1 outlets or connectors shall not increase by more than 10% of its	Considered	N/A

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Clause	Requirement-Test	Result-Remark	Verdict
	<p>rated output voltage under normal operating condition; and</p> <ul style="list-style-type: none"> <li>– of a USB outlet or connector shall not increase by more than 3 V or 10% of its rated output voltage under normal operating conditions, whichever is higher.</li> </ul> <p>For equipment with multiple rated output voltages, the requirements apply with the equipment configured for each rated output voltage in turn.</p> <p>NOTE: This is intended to reduce the possibility of battery fire or explosion in attached equipment or accessories when charging secondary lithium batteries.</p> <p><i>Compliance shall be checked by measurement, taking into account the abnormal operating conditions of Annex B.3 and the simulated single-fault conditions of Annex B.4</i></p>		
<b>6.202</b>	<b>Resistance to fire—Alternative tests</b>		N/A
<b>6.202.1</b>	<p><b>General</b></p> <p>Parts of non-metallic material shall be resistant to ignition and spread of fire.</p> <p>This requirement does not apply to decorative trims, knobs and other parts unlikely to be ignited or to propagate flames from inside the equipment, or the following:</p> <p>a) Components that are contained in an enclosure having a flammability category of V-0 according to AS/NZS 60695.11.10 and having openings only for the connecting wires filling the openings completely, and for ventilation not exceeding 1 mm in width regardless of length.</p> <p>b) The following parts which would contribute negligible fuel to a fire:</p> <ul style="list-style-type: none"> <li>– small mechanical parts, the mass of which does not exceed 4 g, such as mounting parts, gears, cams, belts and bearings;</li> <li>– small electrical components, such as capacitors with a volume not exceeding 1 750 mm<sup>3</sup>, integrated circuits, transistors and optocoupler packages, if these components are mounted on material of flammability category V-1, or better,</li> </ul>		N/A

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Clause	Requirement-Test	Result-Remark	Verdict
	<p>according to AS/NZS 60695.11.10.</p> <p>NOTE: In considering how to minimize propagation of fire and what 'small parts' are, account should be taken of the cumulative effect of small parts adjacent to each other for the possible effect of propagating the fire from one part to another.</p>		
	<p><i>Compliance shall be checked by the tests of Clauses 6.202.2, 6.202.3 and 6.202.4.</i></p> <p>For the base material of printed boards, compliance shall be checked by the test of Clause 6.202.5.</p> <p>The tests shall be carried out on parts of non-metallic material which have been removed from the equipment. When the glow-wire test is carried out, the parts shall be placed in the same orientation as they would be in normal use.</p> <p>These tests are not carried out on internal wiring.</p>		N/A
6.202.2	<p><b>Testing of non-metallic materials</b></p> <p>Parts of non-metallic material shall be subject to the glow-wire test of AS/NZS 60695.2.11 which shall be carried out at 550°C.</p> <p>Parts for which the glow-wire test cannot be carried out, such as those made of soft or foamy material, shall meet the requirements specified in ISO 9772 for category FH-3 material. The glow-wire test shall be not carried out on parts of material classified at least FH-3 according to ISO 9772 provided that the relevant part is not thinner than the sample tested.</p>		N/A
6.202.3	<p><b>Testing of insulating materials</b></p> <p>Parts of insulating material supporting Potential Ignition Sources shall be subject to the glow-wire test of AS/NZS 60695.2.11 which shall be carried out at 750°C.</p> <p>The test shall be also carried out on other parts of insulating material which are within a distance of 3 mm of the connection.</p> <p>NOTE: Contacts in components such as switch contacts are considered to be connections</p>		N/A

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Clause	Requirement-Test	Result-Remark	Verdict								
	<p>For parts which withstand the glow-wire test but produce a flame, other parts above the connection within the envelope of a vertical cylinder having a diameter of 20 mm and a height of 50 mm shall be subjected to the needle-flame test.</p> <p>However, parts shielded by a barrier which meets the needle-flame test need not be tested</p>		N/A								
	<p>The needle-flame test shall be made in accordance with AS/NZS 60695.11.5 with the following modifications:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px;"><b>Clause of AS/NZS 60695.11.5</b></td><td style="padding: 5px;">Change</td></tr> <tr> <td style="padding: 5px;"><b>9 Test procedure</b></td><td style="padding: 5px;"></td></tr> <tr> <td style="padding: 5px;"><b>9.2 Application of needle-flame</b></td><td style="padding: 5px;"> <p><i>Delete</i> the first and second paragraphs and <i>replace</i> with the following:</p> <p>The specimen shall be arranged so that the flame can be applied to a vertical or horizontal edge as shown in the examples of Figure 1. If possible the flame shall be applied at least 10 mm from a corner.</p> <p>The duration of application of the test flame shall be 30 s ± 1 s.</p> </td></tr> <tr> <td style="padding: 5px;"><b>9.3 Number of test specimens</b></td><td style="padding: 5px;"> <p><i>Replace</i> with the following:</p> <p>The test shall be made on one specimen. If the specimen does not withstand the test,</p> </td></tr> </table>	<b>Clause of AS/NZS 60695.11.5</b>	Change	<b>9 Test procedure</b>		<b>9.2 Application of needle-flame</b>	<p><i>Delete</i> the first and second paragraphs and <i>replace</i> with the following:</p> <p>The specimen shall be arranged so that the flame can be applied to a vertical or horizontal edge as shown in the examples of Figure 1. If possible the flame shall be applied at least 10 mm from a corner.</p> <p>The duration of application of the test flame shall be 30 s ± 1 s.</p>	<b>9.3 Number of test specimens</b>	<p><i>Replace</i> with the following:</p> <p>The test shall be made on one specimen. If the specimen does not withstand the test,</p>		N/A
<b>Clause of AS/NZS 60695.11.5</b>	Change										
<b>9 Test procedure</b>											
<b>9.2 Application of needle-flame</b>	<p><i>Delete</i> the first and second paragraphs and <i>replace</i> with the following:</p> <p>The specimen shall be arranged so that the flame can be applied to a vertical or horizontal edge as shown in the examples of Figure 1. If possible the flame shall be applied at least 10 mm from a corner.</p> <p>The duration of application of the test flame shall be 30 s ± 1 s.</p>										
<b>9.3 Number of test specimens</b>	<p><i>Replace</i> with the following:</p> <p>The test shall be made on one specimen. If the specimen does not withstand the test,</p>										

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Clause	Requirement-Test	Result-Remark	Verdict
	<p>the test may be repeated on two further specimens, both of which shall withstand the test.</p> <p><b>11 Evaluation of test results</b></p> <p>Replace with the following: The duration of burning (tb) shall not exceed 30 s. However, for printed circuit boards, it shall not exceed 15 s.</p> <p>The needle-flame test shall not be carried out on parts of material classified as V-0 or V-1 according to AS/NZS 60695.11.10, provided that the relevant part is not thinner than the sample tested.</p>		
6.202.4	<p><b>Testing in the event of non-extinguishing material</b></p> <p>If parts, other than enclosures, do not withstand the glow wire tests of Clause 6.202.3, by failure to extinguish within 30 s after the removal of the glow wire tip, the needle-flame test detailed in Clause 6.202.3 shall be made on all parts of non-metallic material which are within a distance of 50 mm or which are likely to be impinged upon by flame during the tests of Clause 6.202.3. Parts shielded by a separate barrier which meets the needle-flame test need not be tested.</p> <p>NOTE 1: If the enclosure does not withstand the glow-wire test the equipment is considered to have failed to meet the requirements of Clause 6.202 without the need for consequential testing.</p> <p>NOTE 2: If other parts do not withstand the glow-wire test due to ignition of the tissue paper and if this indicates that burning or glowing particles can fall onto an external surface underneath the equipment, the equipment is considered to have failed to meet the requirements of Clause 6.202 without the need for consequential testing.</p>	N/A	

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Clause	Requirement-Test	Result-Remark	Verdict
	<p>NOTE 3: Parts likely to be impinged upon by the flame are considered to be those within the envelope of a vertical cylinder having a radius of 10 mm and a height equal to the height of the flame, positioned above the point of the material supporting, in contact with, or in close proximity to, connections.</p>		
<b>6.202.5</b>	<p><b>Testing of printed boards</b></p> <p>The base material of printed boards shall be subjected to the needle-flame test of Clause 6.202.3. The flame shall be applied to the edge of the board where the heat sink effect is lowest when the board is positioned as in normal use. The flame shall not be applied to an edge, consisting of broken perforations, unless the edge is less than 3 mm from a potential ignition source.</p> <p>The test is not carried out if—</p> <ul style="list-style-type: none"> <li>– the printed board does not carry any potential ignition source;</li> <li>– the base material of printed boards, on which the available apparent power at a connection exceeds 15 VA operating at a voltage exceeding 50 V and equal or less than 400 V (peak) a.c. or d.c. under normal operating conditions, is of flammability category V-1 or better according to AS/NZS 60695.11.10, or the printed boards are protected by an enclosure meeting the flammability category V-0 according to AS/NZS 60695.11.10, or made of metal, having openings only for connecting wires which fill the openings completely; or</li> <li>– the base material of printed boards, on which the available equipment power at a connection exceeds 15 VA operating at a voltage exceeding 400 V (peak) a.c. or d.c. under normal operating conditions, and base material of printed boards supporting spark gaps which provides protection against overvoltages, is of flammability category V-0 according to AS/NZS 60695.11.10 or the printed boards are contained in a metal enclosure, having openings only for connecting wires which fill the openings completely.</li> </ul> <p><i>Conformance shall be determined using the smallest thickness of the material.</i></p>	N/A	

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Clause	Requirement-Test	Result-Remark	Verdict
	NOTE: Available apparent power is the maximum apparent power which can be drawn from the supplying circuit through a resistive load whose value is chosen to maximize the apparent power for more than 2 min when the circuit supplied is disconnected.		
<b>6.202.6</b>	<b>For open circuit voltages greater than 4 kV</b> Potential ignition sources with open circuit voltages exceeding 4 kV (peak) a.c. or d.c. under normal operating conditions shall be contained in a FIRE ENCLOSURE which shall comply with flammability category V-1 or better according to AS/NZS 60695.11.10.		N/A
<b>8.6.1.201</b>	<b>8.6.1.201 Instructional safeguard for fixed-mount television sets</b> MS2 and MS3 television sets and display devices designed only for fixed mounting to a wall or ceiling or equipment rack shall, where required in Table 36, footnote 201, have an instructional safeguard in accordance with Clause F.5 which may be on the equipment or included in the installation instructions or equivalent document accompanying the equipment. The elements of the instructional safeguard shall be as follows: – element 1a: not available; – element 2: ‘Stability Hazard’ or equivalent wording; – element 3: ‘The television set may fall, causing serious personal injury or death’ or equivalent text; – element 4: the following or equivalent text: To prevent injury, this television set must be securely attached to the floor/wall in accordance with the installation instructions		N/A
<b>8.6.1.202</b>	<b>Restraining device</b> MS2 and MS3 television sets and display devices that are not solely fixed-mounted should be provided with a restraining device such as a fixing point to facilitate restraining the equipment from toppling forward. The restraining device shall be capable of withstanding a pull of 100 N in all directions without damage. Where a restraining device is provided, instructions		N/A

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	shall be provided in the instructions for installation or instructions for use to ensure correct and safe installation.		
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Clause	Requirement-Test	Result-Remark	Verdict
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5.2		TABLE: Classification of electrical energy sources					P
Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters				ES Class
			U (V)	I (mA)	Type <sup>1)</sup>	Additional Info <sup>2)</sup>	
3.0Vdc	Power supply by Lithium coin cell battery	Normal	3.0Vd.c.	--	--	--	ES1
			--	--	--	--	
			--	--	--	--	

Supplementary information:

1) Type: Steady state (SS), Capacitance (CP), Single pulse (SP), Repetitive pulses (RP), etc.

2) Additional Info: Frequency, Pulse duration, Pulse off time, Capacitance value, etc.

5.4.1.8	TABLE: Working voltage measurement					N/A
Location		RMS voltage (V)	Peak voltage (V)	Frequency (Hz)	Comments	

Supplementary information:

5.4.1.10.2	TABLE: Vicat softening temperature of thermoplastics				N/A
Method.....:		ISO 306 / B50			—
Object/ Part No./Material		Manufacturer/trademark	Thickness (mm)	T softening (°C)	

Supplementary information:

5.4.1.10.3	TABLE: Ball pressure test of thermoplastics				N/A
Allowed impression diameter (mm).....:		≤ 2 mm			—
Object/Part No./Material		Manufacturer/trademark	Thickness (mm)	Test temperature (°C)	Impression diameter (mm)

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Supplementary information:				

5.4.2, 5.4.3	TABLE: Minimum Clearances/Creepage distance								N/A
Clearance (cl) and creepage distance (cr) at/of/between:	U <sub>p</sub> (V)	U <sub>rms</sub> (V)	Freq <sup>1)</sup> (Hz)	Required cl (mm)	cl (mm)	E.S. <sup>2)</sup> (V)	Required cr (mm)	cr (mm)	
Supplementary information:									
1) Only for frequency above 30 kHz 2) Complete Electric Strength voltage (E.S. (V) when 5.4.2.4 applied)									

5.4.4.2	TABLE: Minimum distance through insulation						N/A			
Distance through insulation (DTI) at/of	Peak voltage (V)		Insulation		Required DTI (mm)	Measured DTI (mm)				
Supplementary information:										

5.4.4.9	TABLE: Solid insulation at frequencies >30 kHz						N/A
Insulation material	E <sub>P</sub>	Frequency (kHz)	K <sub>R</sub>	Thickness d (mm)	Insulation	V <sub>PW</sub> (Vpk)	
Supplementary information:							

5.4.9	TABLE: Electric strength tests				N/A
Test voltage applied between:	Voltage shape (Surge, Impulse, AC, DC, etc.)		Test voltage (V)	Breakdown Yes / No	

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Clause	Requirement-Test	Result-Remark	Verdict
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Supplementary information:

5.5.2.2	<b>TABLE: Stored discharge on capacitors</b>					N/A
Location	Supply voltage (V)	Operating and fault condition <sup>1)</sup>	Switch position	Measured voltage (Vpk)	ES Class	
Supplementary information:						
X-capacitors installed for testing: <input type="checkbox"/> bleeding resistor rating: <input type="checkbox"/> ICX: 1) Normal operating condition (e.g., normal operation, or open fuse), SC= short circuit, OC= open circuit						

5.6.6	<b>TABLE: Resistance of protective conductors and terminations</b>					N/A
Location	Test current (A)	Duration (min)	Voltage drop (V)	Resistance ( $\Omega$ )		
Supplementary information:						

5.7.4	<b>TABLE: Unearthed accessible parts</b>					N/A
Location	Operating and fault conditions	Supply Voltage (V)	Parameters			ES class
			Voltage ( $V_{rms}$ or $V_{pk}$ )	Current ( $A_{rms}$ or $A_{pk}$ )	Freq. (Hz)	
Supplementary information:						
Abbreviation: SC= short circuit; OC= open circuit						

5.7.5	<b>TABLE: Earthed accessible conductive part</b>					N/A
Supply voltage (V).....:					—	
Phase(s) .....	[ ] Single Phase; [ ] Three Phase; [ ] Delta [ ] Wye					

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Clause	Requirement-Test	Result-Remark	Verdict
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Power Distribution System .....	[ ] TN    [ ] TT    [ ] IT		
Location	Fault Condition No in IEC 60990 clause 6.2.2	Touch current (mA)	Comment
Supplementary Information:			

5.8	TABLE: Backfeed safeguard in battery backed up supplies						N/A
Location	Supply voltage (V)	Operating and fault condition	Time (s)	Open-circuit voltage (V)	Touch current (A)	ES Class	
Supplementary information:							
Abbreviation: SC= short circuit, OC= open circuit							

6.2.2	TABLE: Power source circuit classifications						P
Location	Operating and fault condition	Voltage (V)	Current (A)	Max. Power <sup>1)</sup> (W)	Time (S)	PS class	
3.0Vd.c. ( Power supply by Lithium coin cell battery)	Normal condition	--	--	--	--	PS1 <sup>2)</sup>	
Supplementary information:							
Abbreviation: SC= short circuit; OC= open circuit							
1) Measured after 3 s for PS1 and measured after 5 s for PS2 and PS3.							
2) supplied by Lithium coin cell battery,, PS1assumed.							

6.2.3.1	TABLE: Determination of Arcing PIS				N/A
Location	Open circuit voltage after 3 s (Vpk)	Measured r.m.s current (A)	Calculated value	Arcing PIS? Yes / No	
Supplementary information:					

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Clause	Requirement-Test	Result-Remark	Verdict
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<b>6.2.3.2</b>	<b>TABLE: Determination of resistive PIS</b>			N/A
Location		Operating and fault condition	Dissipate power (W)	Arcing PIS? Yes / No
--		--	--	--
Supplementary information:				
Abbreviation: SC= short circuit; OC= open circuit				

<b>8.5.5</b>	<b>TABLE: High pressure lamp</b>				N/A
Lamp manufacturer		Lamp type	Explosion method	Longest axis of glass particle (mm)	Particle found beyond 1 m Yes / No
Supplementary information:					

<b>9.6</b>	<b>TABLE: Temperature measurements for wireless power transmitters</b>							N/A
Supply voltage (V)..... :								—
Max. transmit power of transmitter (W).....:								—
Foreign objects	w/o receiver and direct contact		with receiver and direct contact		with receiver and at distance of 2 mm		with receiver and at distance of 5 mm	
	Object (°C)	Ambient (°C)	Object (°C)	Ambient (°C)	Object (°C)	Ambient (°C)	Object (°C)	Ambient (°C)
Supplementary information:								

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Clause	Requirement-Test	Result-Remark	Verdict
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<b>5.4.1.4, 9.3, B.1.5, B.2.6</b>	<b>TABLE: Temperature measurements</b>					<b>P</b>
Supply voltage (V)..... :		3.0Vd.c. ( power supply by Lithium coin cell battery)	--	--	--	
Ambient temperature during test $T_{amb}$ (°C)..:	See below	See below	--	--	--	
Maximum measured temperature $T$ of part/at:			$T$ (°C)			Allowed $T_{max}$ (°C)
PCB near U2	25.9	58.1	--	--	--	130
PCB near U1	25.4	57.6	--	--	--	130
Battery surface	23.7	55.9	--	--	--	Ref.
Plastic enclosure (inside near main board top)	23.2	55.4	--	--	--	Ref.
Ambient	22.8	55.0	--	--	--	--
Touch temperature:						
Plastic enclosure (outside near main board top)	22.9	25.1	--	--	--	77
Ambient	22.8	25.0	--	--	--	--
Temperature T of winding:	$t_1$ (°C)	$R_1$ ( $\Omega$ )	$t_2$ (°C)	$R_2$ ( $\Omega$ )	$T$ (°C)	Allowed $T_{max}$ (°C)
--	--	--	--	--	--	--
Supplementary information:						
Supplementary information: * Temperature limit for TS1 of accessible enclosure according to Table 38.						
Note 1: The apparatus was submitted and evaluated for maximum manufacturer's recommended ambient (Tma) of 55°C.						
Note 2: The temperatures were measured under the worst box normal mode defined in clause B.2.1.						

<b>B.2.5</b>	<b>TABLE: Input test</b>								<b>P</b>
U (V)	Hz	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status	
3.0	--	0.004	--	0.012	--	--	--	Max.normal working	

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Clause	Requirement-Test	Result-Remark	Verdict

Supplementary information:

<b>B.3, B.4 TABLE: Abnormal operating and fault condition tests</b>							<b>P</b>
Ambient temperature $T_{amb}$ ( $^{\circ}$ C)..... :				See below			—
Power source for EUT: Manufacturer, model/type, outputrating : .....				--			—
Component No.	Condition	Supply voltage (V)	Test time	Fuse no.	Fuse current (A)	Observation	
U1 pin4-5	S-C	3.0Vd.c.	10mins	--	--	Input current:0.004A Unit normally operating no damaged, no hazard.	
U2 pin9-41	S-C	3.0Vd.c.	10mins	--	--	Input current: 0.004A→0A Unit shut down immediately, Recoverable no damaged, no hazard.	
Battery B+ t0 B-	S-C	3.0Vd.c.	10mins	--	--	Input current:0.004A→0A Unit shutdown Recoverable no damaged, no hazard.	
R1	S-C	3.0Vd.c.	10mins	--	--	Input current: 0.004A Unit normally operating no damaged, no hazard.	
C3	S-C	3.0Vd.c.	10mins	--	--	Input current: 0.004A→0A Unit shut down immediately, Recoverable no damaged, no hazard.	

Supplementary information:

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Clause	Requirement-Test	Result-Remark	Verdict
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M.3	<b>TABLE: Protection circuits for batteries provided within the equipment</b>						P
Is it possible to install the battery in a reverse polarity position?..:							—
Equipment Specification	Charging						
	Voltage (V)			Current (A)			
	3.0			--			
Manufacturer/type	Battery specification						
	Non-rechargeable batteries			Rechargeable batteries			
	Discharging current (A)	Unintentional charging current (A)	Charging		Discharging current (A)	Reverse charging current (A)	
Panasonic Corporation/CR2032	--	--	--	--	--	--	--
Note: The tests of M.3.2 are applicable only when above appropriate data is not available.							
Specified battery temperature (°C).....:							
Component No.	Fault condition	Charge/ discharge mode	Test time	Temp. (°C)	Current (A)	Voltage (V)	Observation
CR2032	Normal	Discharge	7h	23.7	0.004	3.0	NL,NS,NE,NF
CR2032	U1 pin1-4	Discharge	7h	24.1	0.004	3.0	NL,NS,NE,NF
Supplementary information:							
Abbreviation: SC= short circuit; OC= open circuit NL= no chemical leakage; NS= no spillage of liquid; NE= no explosion; NF= no emission of flame or expulsion of molten metal.							

M.4.2	<b>TABLE: Charging safeguards for equipment containing a secondary lithium battery</b>						N/A
Maximum specified charging voltage (V)..... :							—
Maximum specified charging current (A) .....							—
Highest specified charging temperature (°C) .....							
Lowest specified charging temperature (°C) .....							
Battery manufacturer/type	Operating and fault condition	Measurement			Observation		
		Charging voltage (V)	Charging current (A)	Temp. (°C)			

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Clause	Requirement-Test	Result-Remark	Verdict
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## Supplementary information:

Abbreviation: SC= short circuit; OC= open circuit; MSCV= maximum specified charging voltage; MSCC= maximum specified charging current; HSCT= highest specified charging temperature; LSCT= lowest specified charging temperature

Q.1	<b>TABLE: Circuits intended for interconnection with building wiring (LPS)</b>						N/A
Output Circuit	Condition	U <sub>oc</sub> (V)	Time (s)	I <sub>sc</sub> (A)		S (VA)	
				Meas.	Limit	Meas.	Limit

Supplementary Information:

T.2, T.3, T.4, T.5	<b>TABLE: Steady force test</b>						P
Location/Part	Material	Thickness (mm)	Probe	Force (N)	Test Duration (s)	Observation	
Enclosure(side)	Plastic	1.30	--	250	5	No damage, no hazard	
Enclosure (bottom)	Plastic	1.30	--	250	5	No damage, no hazard	
Enclosure(top)	Plastic	1.30	--	250	5	No damage, no hazard	

Supplementary information:

T.6, T.9	<b>TABLE: Impact test</b>					P
Location/Part	Material	Thickness (mm)	Height (mm)	Observation		
Enclosure(side)	Plastic	1.30	1300	No damage, no hazard		
Enclosure	Plastic	1.30	1300	No damage, no hazard		

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Clause	Requirement-Test	Result-Remark		Verdict
(bottom)				
Enclosure(top)	Plastic	1.30	1300	No damage, no hazard
Supplementary information:				

T.7	<b>TABLE: Drop test</b>				N/A
Location/Part	Material	Thickness (mm)	Height (mm)	Observation	
Supplementary information:					

T.8	<b>TABLE: Stress relief test</b>					P
Location/Part	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation	
The whole EUT	Plastic	--	70	7	No damage, no hazard	
Supplementary information:						

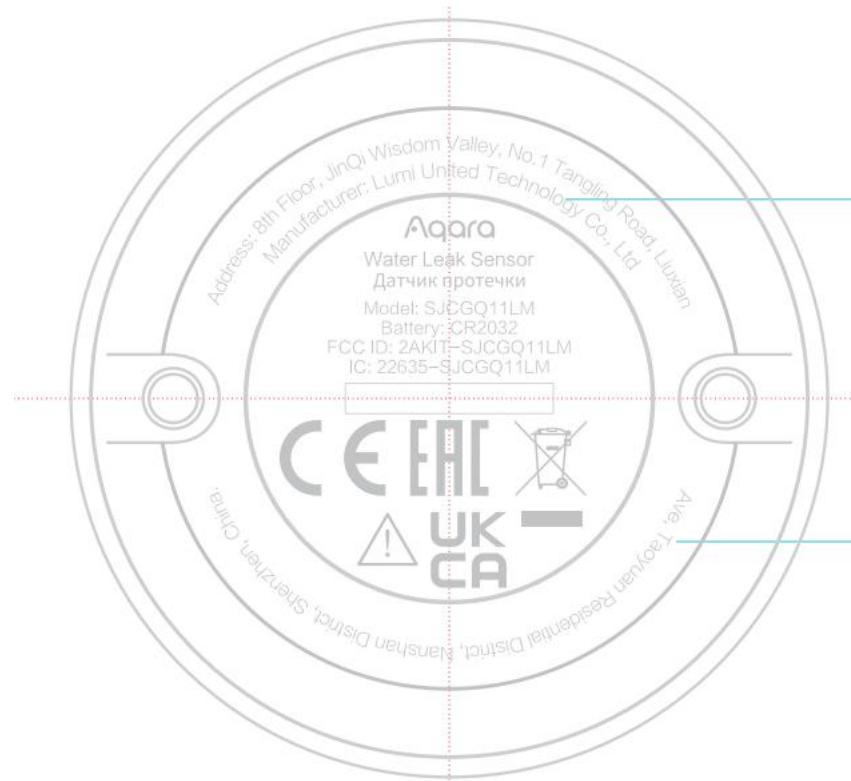
X	<b>TABLE: Alternative method for determining minimum clearances distances</b>				N/A
Clearance distanced between:	Peak of working voltage (V)	Required cl (mm)	Measured cl (mm)		
Supplementary information:					

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Clause	Requirement-Test	Result-Remark	Verdict
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<b>4.1.2 TABLE: Critical components information</b>						P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity <sup>1)</sup>	
PCB	ZHUHAI CAMTECH CIRCUITS CO LTD	CT-M	V-0 ,130 °C, Min. thickness: 1.0mm	UL 796 UL 94	UL E343438	
Alternative	Interchangeable	Interchangeabl e	Min. V-1, 105°C, Min. thickness: 1.0mm	UL 796 UL 94	UL	
Plastic enclosure	SINOPLAST GROUP LTD	7015-(xx)	HB , 80°C, Min. thickness: 1.30mm	UL94 UL 746	UL E335478	
Alternative	Interchangeable	Interchangeabl e	Min.HB , 80°C, Min. thickness: 1.30mm	UL94 UL 746	UL	
Coin cell battery	Panasonic Corporation	CR2032	DC 3.0V	IEC 60086-4:2014	Report Certificate: NL-59040	
Supplementary information:						
1) Provided evidence ensures the agreed level of compliance. See OD-CB2039.						

## 6 Product Marking Label



Label of main unit

## 7 PHOTO DOCUMENT



Figure 1. Overall view

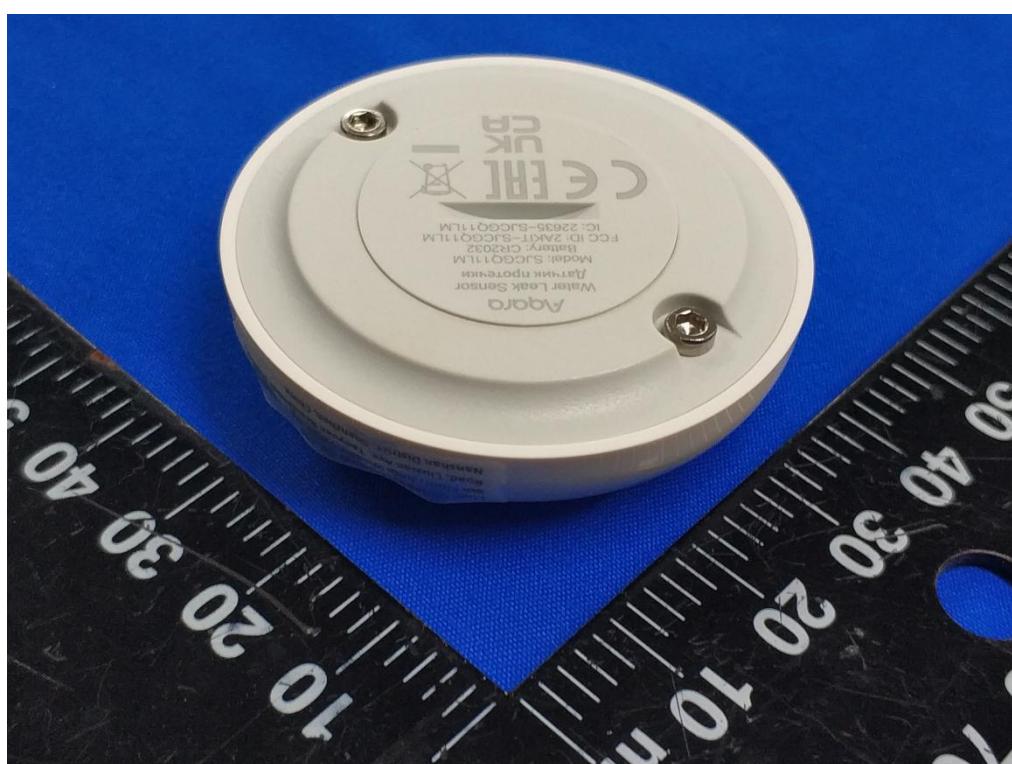


Figure 2. Overall view

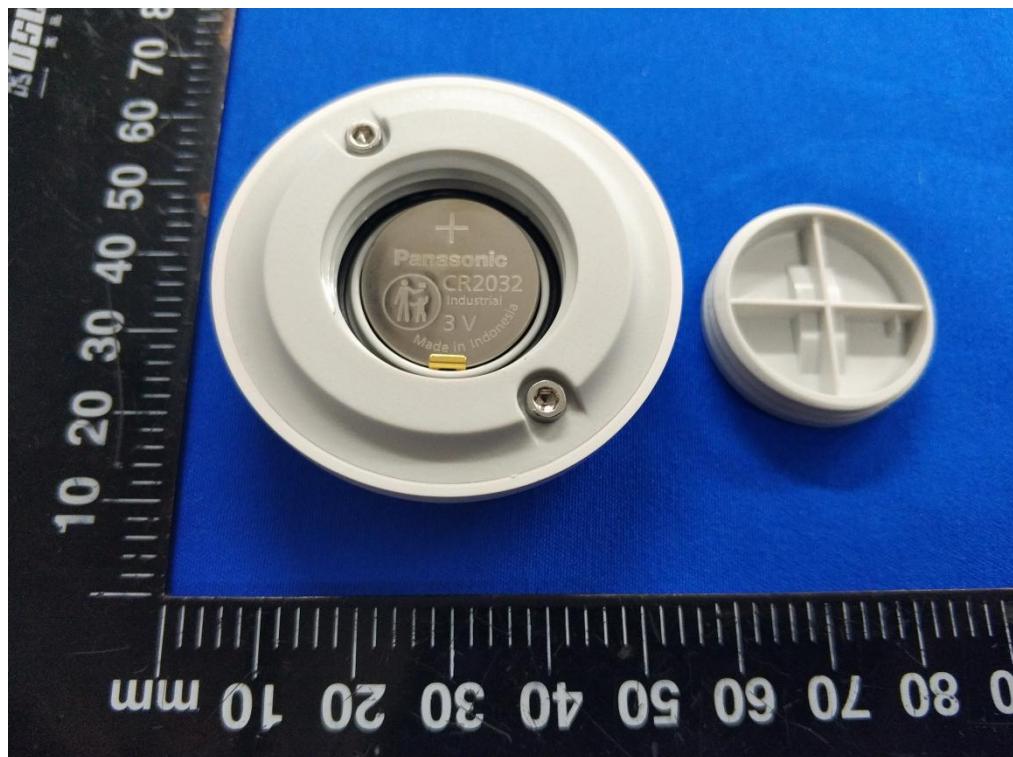


Figure 3. Internal view

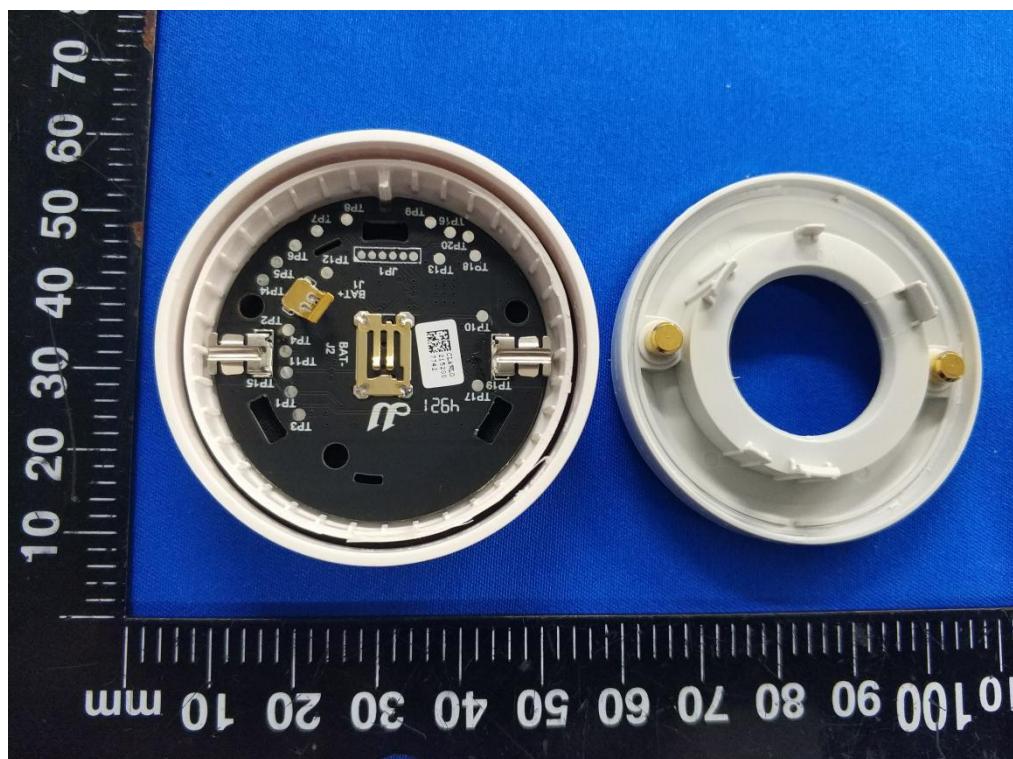


Figure 4. Internal view

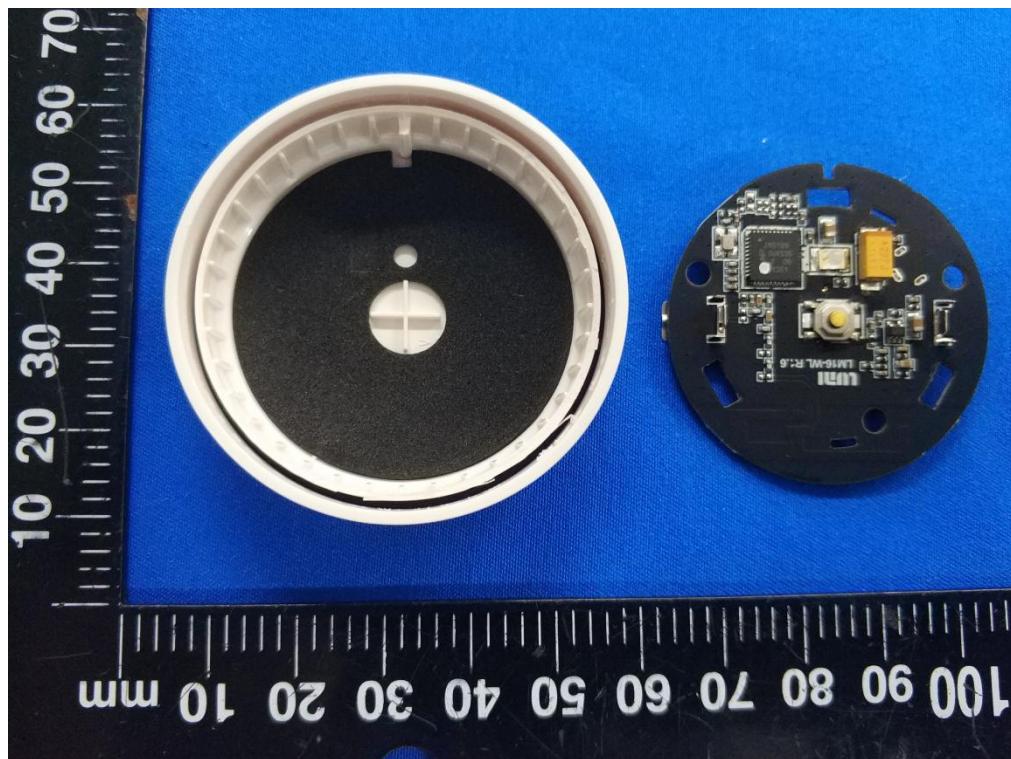


Figure 5. Internal view

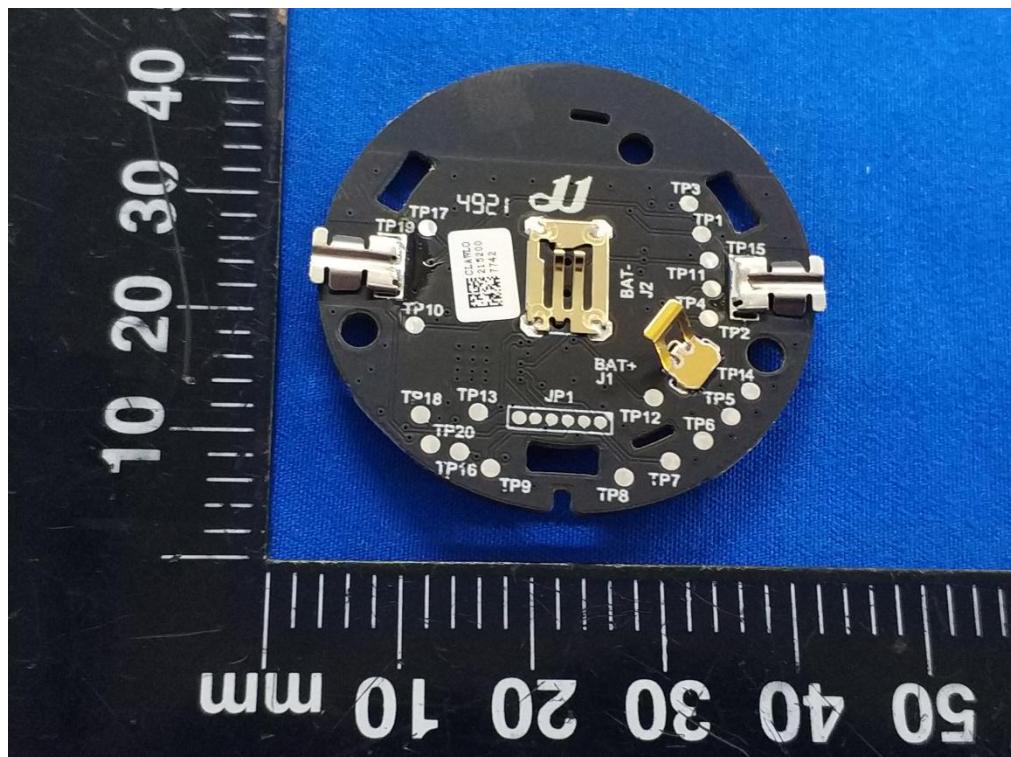


Figure 6. Main board view

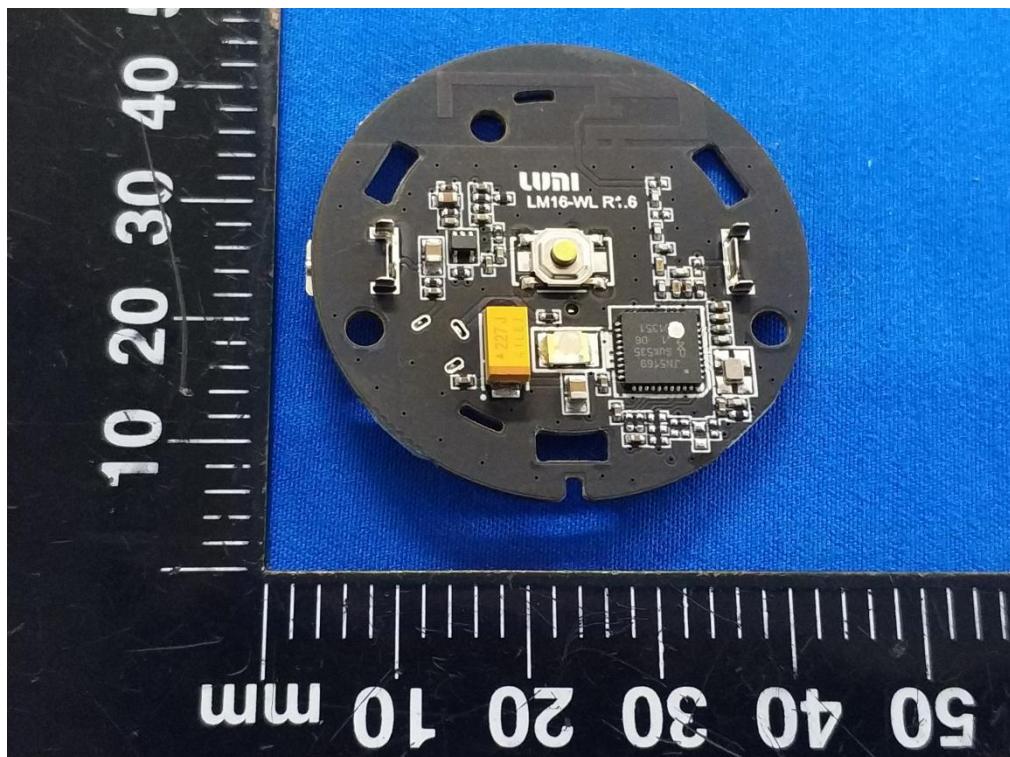


Figure 7. Main board view



Figure 8. Coin cell battery view

## Statement

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